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# BULLETIN

OF THE

## NUTTALL ORNITHOLOGICAL CLUB:

A Quarterly Journal of Ornithology.

VOLUME III.

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Editor,

J. A. ALLEN.

Associate Editors,

S. F. BAIRD AND ELLIOTT COUES.

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# BULLETIN

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Vol. III.

JANUARY, 1878.

No. I.

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NOTE ON *PASSERCULUS BAIRDI* AND *P. PRINCEPS*.

BY DR. ELLIOTT COUES, U. S. A.

THE Nuttall Ornithological Club gratefully acknowledges the liberality of Messrs. T. Sinclair and Son, the well-known lithographers, of Philadelphia, through which the opening number of the third volume of the Bulletin is illustrated with a fine colored plate of Baird's Bunting. The figure was drawn under my direction by Mr. Edwin L. Sheppard of Philadelphia, and represents the adult male as I have often observed it singing during the breeding season. The plate was engraved and printed in colors by the Messrs. Sinclair, in the interests of science, and the whole edition was generously presented by them to the Club.

No full-length colored figure of this species has hitherto been published since Audubon's original, which was taken from a specimen in worn plumage, as the type now preserved in the Smithsonian attests, and is far less characteristic than the Sinclair plate. The colored head in Baird, Brewer, and Ridgway, as well as the wood-cuts on page 531 of their work below cited, were all from that same specimen. In fact, no second specimen was known until 1872, when Mr. C. E. Aiken took, in El Paso County, Colorado, a young bird, which was soon after described as a new species, *Centronyx ochrocephalus*. The following year he obtained another; and during the summer of that year great numbers were taken in Dakota by Mr. J. A. Allen and myself, and also in Arizona by Mr. H. W. Henshaw. Since that time the species has been well known and illustrated by an abundance of specimens.

There is no occasion here to enter into its history, as all that is known is already published in the works below cited, — the more complete notices being those in the "Birds of the Northwest" and the "History of North American Birds," especially in the Appendix of Vol. III. of the latter.

At one time it was thought that Baird's Bunting had been found in Massachusetts. The error was not rectified until several notices to such effect, including Mr. Maynard's full account, and his plate of the supposed Massachusetts "*Centronyx*," had appeared. Mr. Maynard made the correction in 1872, when the New England bird was named *Passerculus princeps*.

The complete synonymy of the two species, and their nearly entire bibliography, are as follows: —

#### *Passerculus bairdi*.

*Emberiza bairdii*, AUD., B. Amer. 8vo. ed. vii, 1843, 359, pl. 500 (orig. description. Fort Union, Dak.). — BAIRD, Stansbury's Rep. Great Salt Lake, 1852, 330 (mere quotation).

*Coturniculus bairdi*, BP., Consp. Av. i., 1850, 481 (mere quotation).

*Centronyx bairdii*, BD., B. N. A. 1858, 441 (type of the genus. Species redescribed from the type specimen). (Not of any authors referring to the supposed appearance of the bird in New England.) — COUES, Key, 1872, 135 (compiled description). — AIKEN, Am. Nat. vii, 1873, 236 (comparison with the new *C. ochrocephalus* from Colorado). — RIDGW., Bull. Essex Inst. v, 1873, 182 and 190 (Colorado; critical reference to Aiken's specimens, which had been named *C. ochrocephalus*). — COUES, Am. Nat. vii, 1873, 695 (rediscovery in abundance in Dakota; history and criticism). — HENSHAW, Am. Nat. viii, 1874, 241 (Arizona). — ALLEN, Pr. Bost. Soc. xvii, 1874, 57 (Dakota; nest and eggs). — COUES, B. N. W. 1874, 125 (synonymy, redescription, general history and habits). — HENSHAW, Rep. Ornith. Specs. 1874, 110 (New Mexico and Arizona, abundant). — HENSHAW, Rep. Expl. W. 100 merid. Vol. v, Zoölogy, "1875" = 1876, 253 (same). — BD., BREW., and RIDGW., Hist. N. A. B. i, 1874, 531, figs. pl. 25, f. 3; iii, 1874, 510 (general account, wood-cuts, and colored plate of head). — HENSHAW, List B. Arizona, 1875, 158.

*Emberiza (Centronyx) bairdii*, GRAY, Hand-list, ii, 1870, 116, No. 7733.

*Ammodromus bairdi*, GIEBEL, Nomencl. Av. i, 187-, 328.

*Passerculus bairdii*, COUES, Am. Nat. vii, 1873, 697.

*Passerculus bairdi*, McCAULEY, Bull. U. S. Geol. Surv. iii, No. 3, 1877, 663 (Cañoncito Texas; nesting).

*Centronyx ochrocephalus*, "AIKEN" [Ridgway], Am. Nat. vii, 1873, 237 (El Paso, Colorado, autumnal specimens described as new species. — See Scott, *ibid.* 564; Coues, *ibid.* 696; Ridgw. Bull. Essex Inst. v, 1873, 190).

**Passerculus princeps.**

*Centronyx bairdii*, ALLEN, Am. Nat. iii, 1869, 513 (original notice of supposed occurrence of *P. bairdii* in Massachusetts, the actual reference being to *P. princeps*). — MAYN., Am. Nat. iii, 1869, 554 (next notice of the same). — ALLEN, Am. Nat. iii, 1869, 631 (third notice of the same). — MAYN., Nat. Guide, 1870, 113, frontisp. (fourth notice of the same). — BREWST., Am. Nat. vi, 1872, 307 (fifth notice of the same, and of additional specimens).

*Passerculus princeps*, MAYN., Am. Nat. vi, 1872, 637 (explanation of the error, and the supposed "*C. bairdii*" from Ipswich, Mass. named *P. princeps*). — COUES, Key, 1872, App. 352. — COUES, Am. Nat. vii, 1873, 696. — BD., BREW., and RIDGW., Hist. N. A. B. i, 1874, 540, pl. 25, f. 2. — BREWER, Pr. Bost. Soc. xvii, 1875, 441. — BREWST., Bull. Nuttall Club, i, 1876, 52 (New Brunswick). — MERRIAM, Bull. Nuttall Club, i, 1876, 52 (Connecticut). — BROWN, Bull. Nuttall Club, ii, 1877, 27 (New Hampshire). — BAILEY, Bull. Nuttall Club, ii, 1877, 78 (Coney Island, N. Y.). — MINOT, Birds New Engl. 1877, 195 (general account). — MAYNARD, Nat. Guide, 2d Ed. 1877 (colored plate ; text rewritten).

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ON THE SPECIES OF THE GENUS *PASSERELLA*.

BY H. W. HENSHAW.

THE genus *Passerella* was instituted by Swainson in 1837 to receive the only species known at that time to him, the *Fringilla iliaca* of Merrem and of the early authors generally. The Aonalashka Bunting, doubtfully the *P. townsendi* of recent authors, was named by Gmelin, in 1788, constituting his *Fringilla unalaskensis*. In the uncertainty respecting Gmelin's bird, his description applying equally well to the *Melospiza insignis*, the *townsendi* of Audubon, named in 1838, has been accepted by most ornithologists. The genus, with its two species, thus remained till 1858, when Professor Baird described the *P. schistacea* from the interior, and at the same time noticed a closely allied form from California with larger bill, for which he proposed the name *megarrhyncha*. These four "species," as they have sometimes been called, or forms, make up a very interesting as well as puzzling group, as shown by the doubtful manner in which they have been treated by various writers,

more than one having strongly hinted at the probable specific identity of the four, while the methods in which they have been combined have been nearly as various as the number of authors who have had occasion to notice them.

While the very close relationship existing between the two more recently discovered forms (*schistacea* and *megarhyncha*) has usually been recognized, from the occurrence of intermediate or doubtful specimens, the tendency has been strong to keep separate the two earlier described birds, mainly because no specimens with clearly intermediate characteristics have been recognized. Having had the very unusual opportunity of studying in the field the four forms in question, as well as of examining a very large series of specimens in the Smithsonian collection, many of which were collected by myself in connection with the United States Geographical Surveys west of the 100th Meridian, the conclusion seems to me to be unavoidable that the four forms are but modifications of a single species, brought about through the agency of the laws of Geographical Variation.

Considering first in their relations to each other the *P. schistacea* and *P. megarhyncha*, the first from the northern interior region, the latter from the Southern Sierras, we find that, though very distinct from each other when extreme samples of either form are selected, they yet in the full series before me grade directly together, both in color and general size. Taking examples of *megarhyncha* from the southern Coast Range of California, which may be considered as the true home of the variety, that is, where its peculiarities attain their greatest development, we find them in their enormously developed bills and excessively lengthened tails, as well as darkened colors, to present such a totally different aspect that to liken them to *schistacea* seems almost absurd. Changing, however, our point of observation to the eastern slope of the Sierras, about Lake Tahoe, which is a region approaching somewhat closely the home of *schistacea*, we find that the *Passerellas*, though readily referable to *megarhyncha*, present very appreciable differences from those from the region just noted, and furthermore, that the variation is directly towards the *schistacea* type. The bills in specimens from the eastern slope are invariably and very decidedly smaller than in examples from Fort Tejon and that vicinity, though still much thickened when compared with specimens from the interior (*schistacea*). The color of the under



mandible in typical *megarhyncha* is of a quite characteristic bluish-white, but in these specimens it is of a decidedly yellowish cast,\* very much as seen in *schistacea*. A similar tendency in them to approach the light ashy coloration of *schistacea* is also to be noted. By means of these and other specimens we have no difficulty in forming a very complete chain from the one extreme to the other, and hence we consider the two are to be distinguished only variationally, whatever may be their relations to the others.

Of *megarhyncha* it is to be said that the individual variation is very great, being much more marked than in any of the three others. Though in its extreme condition it is certainly one of the most, perhaps the most, noteworthy of the four birds, its characters are so very inconstant that unless taken from the same locality it is not easy to find two specimens that exactly agree, the variation being especially well marked as to size. In a series even from the same neighborhood the variation is apt to be very considerable, more so, I think, than is the case with any other bird I am acquainted with. As this variety is probably a resident, at least in much of the region inhabited by it, it is not easy to understand this tendency in individuals to vary to so great an extent. On the other hand, its claim to similar recognition as the others is seen in the fact that its habitat is distinctly marked from that of its congeners, and that within its own area no specimens occur which are not sufficiently characteristic to be readily referable to it. As to the relative size of wing and tail in the two forms, the individual variation is never sufficient to alter the proportion, the tail being always in excess of wing.

Leaving now, for the moment, the two forms (*schistacea* and *megarhyncha*) just considered, and taking up the two remaining members of the group (*iliaca* and *townsendi*), we note, first, that their habitats are, in the extreme northwest, in close relation, — *iliaca* being one of the several eastern birds that in the far north span the continent, and reach the Pacific Ocean in Alaska. *Townsendi* is a Pacific-slope form, being found in its typical condition from the Columbia River region north to Sitka, Kodiak, etc. Whether the habitats of the two actually join is not at present

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\* Mr. Ridgway informs me that specimens collected by him in this vicinity in spring show no trace of yellow, but have the typically bluish-white under mandible.

known with certainty. It seems probable that they do, and certain specimens, now to be noted, suggest in their intermediate characters such a union of the respective regions. These are comprised in a series of sixteen specimens collected in California by myself during the fall of 1875. While these are all referable to *townsendi*, not one is typically like that bird, as its characters are illustrated by many examples in the Smithsonian from Sitka, Kodiak, and the contiguous regions. The variation inclines from a quite near approach to the dark olive-brown of *townsendi*, with its unstreaked dorsum, to a shade approaching suspiciously close to the ferruginous color of *iliaca*; these latter individuals show appreciable though obsolete streakings on the back, and may be fairly compared with the latter bird. In this connection a single specimen in the Smithsonian Collection from California is very interesting, since it was named "*iliaca*" by Mr. Ridgway, and thought to be a straggler of this species. On the strength of this specimen, Dr. Coues, in his "Birds of the Northwest," gives *iliaca* as "accidental in California." In the light of the series now at hand the specimen in question assumes a new significance, and is seen to exhibit but a somewhat nearer approach to *iliaca* than the extreme of the above suite; with them it is to be considered as indicating the intermediate condition of color between the two, and hence of their intergradation.

If the same test be applied to *schistacea* and *townsendi* it results, without going into unnecessary details, in the same way. Their complete inosculation as to color may readily be proven. A series of measurements to illustrate the relation in size of the four forms gives the average of the parts as follows. Space forbids our giving full tables of measurements, as would have been desirable.

- P. iliaca*. Average of ten specimens from Eastern United States, Alaska, etc. : wing, 3.40 ; tail, 3.07 ; bill, .32 ; tarsus, .93.  
*P. townsendi*. Average of twenty-three specimens : wing, 3.20 ; tail, 3.15 ; bill, .49 ; tarsus, .94.  
*P. schistacea*. Average of nine specimens : wing, 3.13 ; tail, 3.37 ; bill, .44 ; tarsus, .91.  
*P. megarhyncha*. Average of eight specimens : wing, 3.21 ; tail, 3.58 ; bill, .51 ; tarsus, .93.

As will be seen from the above-given average measurements, *iliaca* and *townsendi* agree in having the wing longer than (in some

specimens of *townsendi* equalling) the tail; while in *schistacea* and *townsendi* the tail is very considerably in excess of the wing. The importance which I was at first disposed to attach to these different proportions was somewhat modified upon ascertaining that in respect to proportion of these parts *townsendi*, with its wing nearly equal to tail, evidently marked the first step towards *schistacea*, in which the tail becomes the longer, a tendency carried still further in *megarhyncha*.

One curious and to me unexpected fact brought out by these measurements is that, not only does the tail become longer in the three western varieties, — a variation well shown in other species whose habitat extends from the eastern into the western province, — but also the wing is found to be *actually shorter*; so that the different proportions which ensue result from two causes: first, actual increase in the length of tail; second, actual decrease in the length of wing. I am not aware that this fact has been noted in the case of any other western bird, though I find a similar but slight tendency in this direction in the *Pipilo* var. *megalonyx*, the western form of the *P. erythrophthalmus*. A careful examination of other species may reveal a similar tendency.

By the above arrangement the four forms will require to stand as follows: —

***Passerella iliaca* (Merr).** *Habitat*, Eastern Province of North America. Breeds from British America northward; across to mouth of Yukon. In migrations to eastern edge of great plains; occasional in spring in Colorado (Maxwell) *vide* Ridgway.

***Passerella iliaca townsendi* (Aud.).** *Habitat*, Pacific Province. Breeds in Northern Sierras; Southern California in winter; confined to western slope of Sierras.

***Passerella iliaca schistacea*, Bd.** *Habitat*, Middle Province, restricted by western edge of plains and eastern slope of Sierras; a rare straggler in Kansas and California in fall.

***Passerella iliaca megarhyncha*, Bd.** *Habitat*, southern Sierras, eastern as well as western slope. Probably resident wherever found.

NOTES ON THE BREEDING HABITS OF *CARPODACUS PURPUREUS* VAR. *CALIFORNICUS*, WITH A DESCRIPTION OF ITS NEST AND EGGS.

BY WILLIAM A. COOPER.

My attention was called to an article in the April number of "The Nuttall Bulletin" relative to the nest and eggs of the California Purple Finch. As my experience does not corroborate the description there given, but differs widely from it, I send the following account of several nests and sets of eggs, fearing the article in question may mislead many whose knowledge may be restricted to published information. About ten nests of this bird have come under my observation during the last ten years. Of each of these the framework was loosely constructed, a portion of each nest being formed of pieces of *Scrophularia nodosa*, some of these being entirely of this plant. I have never found a nest in a fork, and they are usually placed at a considerable distance from the ground. Favorite situations are the tops of tall willows, alders, trees covered with climbing ivy, and horizontal branches of redwoods. The var. *californicus* is as abundant around Santa Cruz as is the *C. frontalis*; but while the latter breeds in the gardens throughout the city, the former retires to the wooded river-bottoms, or the hills back of the town. Being unacquainted with the particulars concerning the capture of the male parent bird, or with its captor (Mr. C. A. Allen), I am unwilling to take the ground that the nest and eggs referred to are not genuine; but the chances of a mistaken parentage appear quite probable.

Four nests and sets of eggs of var. *californicus* give the following characters:—

1. May 30, 1875, I found a nest containing five eggs; incubation a few days advanced. The nest measured 6 inches in diameter outside, 2.50 inside, depth 2.50 outside, 1.38 inside; the framework was of fine dried tops of *Scrophularia*, loosely put together; the inner consisted of fine denuded vegetable fibres, soft woolly substances, compactly made, lined with a few hairs. The nest was placed on a horizontal branch of an alder-tree, forty feet high, built on the top of a limb and barely fastened to it. One egg was broken; the remaining four measure .80 × .58, .80 × .55, .80 × .55,



.77 × .54. They are of a bluish-green color, marked with spots of brown and dull purple, chiefly around the larger end.

2. The same day I found another nest, containing four eggs, which had been incubated about the same length of time as the former. This was placed on one of the topmost branches of an alder-tree fifty feet high. Framework of fine stems, among them *Scrophularia*; also a few pine roots; inner portions of fine fibres, lined with wool and hair. The ground-color of eggs is similar to that of set No. 1; the markings, however, are quite different, being of a dull brownish-purple, minute and confluent, forming a ring around the end of two eggs, and a large spot on the end of the remaining two, one of the latter being also spotted over the entire surface, less abundantly than on the end; they measure .83 × .57, .81 × .56, .81 × .56, .80 × .54.

3. May 3, 1876, I found a nest with four fresh eggs. It was placed twenty feet from the ground, in a thick bunch of willow sprouts, near a small creek. The female bird was on the nest, and would not leave till I almost touched her. The eggs are of a light emerald-green color, spotted similarly to those of set No. 1, the markings forming a more decided ring around the end; the form is more pointed, and the ground-color is deeper than in sets one and two. Measurements, .75 × .55, .73 × .56, .72 × .56, .71 × .57. The framework of the nest consists entirely of *Scrophularia*; the inner nest of roots and bark, lined with fine bark and hair.

4. May, 1875, George H. Ready found a nest containing four fresh eggs. The nest, similar to those above described, was placed on a horizontal branch of an apple-tree in Mission Orchard. These eggs are of an emerald-green color, and are more pointed than any of the other specimens; the markings are finer than those of sets one and three, and darker, some being almost black; a perfect ring is formed around the end of each, and the whole surface of one is spotted. They measure, .80 × .59, .77 × .58, .77 × .56, .76 × .57.

I have on several occasions seen these Finches in trees wherein were nests of *C. frontalis*. The most faded egg I have is much more deeply colored than any egg I have ever seen of *Cyanospiza cyanea*. The markings are always plentiful, forming a ring around the end of many specimens. The only egg I have of *Carpodacus purpureus* is hardly distinguishable from those of var. *californicus*.

I may here add that *Carpodacus purpureus* var. *californicus* is

the most destructive bird we have, visiting our orchards and destroying young buds, blossoms, and fruit. I have swept up a basketful of cherry-blossoms from under one tree in a single day, the heart of the blossoms being the food sought.

*Santa Cruz, California.*

NOTE. — In reference to Mr. Cooper's allusion in the foregoing article to my paper on the nest and eggs of the California Purple Finch, I will add that the bird sent with the nest is positively *Carpodacus purpureus* var. *californicus*, and in view of the improbability of Mr. Allen's having shot a bird not the parent of the eggs I am led to believe that these eggs are abnormal specimens, possibly representing what may be termed an albinistic tendency, like occasional white eggs of our common Bluebird. — W. BREWSTER.

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#### DESCRIPTION OF A NEW WREN FROM THE TRES MARIAS ISLANDS.

BY ROBERT RIDGWAY.

IN casually examining the series of Wrens in the National Museum collection, I happened to notice certain differences between specimens of so-called *Thryothorus felix* from the Tres Marias Islands, off the western coast of Mexico, and examples typical of the species collected on the adjoining mainland, in the vicinity of Mazatlan. These specimens were all obtained subsequent to the publication of Professor Baird's "Review of American Birds" (1864 – 1866); and since Mr. Lawrence makes no mention of the difference alluded to, in either of his recent papers on the ornithology of Western Mexico, I presume that gentleman had no opportunity of making a direct comparison of the series from the two localities.

The new form is clearly a derivative from the mainland species, but is so far differentiated as to require a distinctive name. I therefore propose to name it *Thryothorus lawrencii*, in honor of the distinguished ornithologist referred to above. Its characters are as follows : —

#### ***Thryothorus felix*, $\beta$ . *lawrencii*, RIDGWAY, MSS.**

CHAR. — Above light grayish-brown, without appreciable bars anywhere, except on the tail; pileum decidedly more reddish, and inclining to light cinnamon-brown. Tail similar in color to the back, but

crossed by numerous (seven or eight, the number rather indefinite, however) bars of black ; these bars becoming broken towards the ends, and gradually obsolete at the bases of the feathers ; the ground-color occasionally paler along the posterior edge of the blackish bar. Whole side of the head and entire lower parts white, the sides faintly tinged with buff. A distinct dusky stripe along upper edge of auriculars, below the very conspicuous and continuous white superciliary stripe. Bill and feet plumbeous-dusky. Wing, 2.30 - 2.45 ; tail, 2.30 - 2.45 ; bill, from nostril, .45 - .48 ; culmen, .75 - .78 ; tarsus, .80 ; middle toe, .50.

*Habitat.* Tres Marias Islands, off the western coast of Mexico.

*Types.* 37,329, ♂ (Jan. 1865), 50,817, and 50,818 (U. S. Nat. Mus. Catal.), Tres Marias ; Col. A. J. Grayson.

The principal characteristics of this form and the typical one may be contrasted as follows :—

**a. felix.** Throat bordered along each side by a wide and conspicuous stripe of black ; whole sides of neck and also auriculars distinctly streaked with black ; entire lower parts, except throat, buff, deepest along sides. Wing, 2.10 - 2.35 ; tail, 2.25 - 2.35 ; bill, from nostril, .39 - .42 ; tarsus, .80 - .90 ; middle toe, .50 - .52.\* *Hab.*, mainland of Western Mexico, from Mazatlan to Oaxaca.

**β. lawrencii.** Black markings of cheeks, etc., usually entirely absent, very rarely barely indicated ; lower parts, except sides, pure white. Wing, 2.30 - 2.45 ; tail, 2.30 - 2.45 ; bill, from nostril, .45 - .48 ; tarsus, .80 ; middle toe, .50.† *Hab.*, Tres Marias Islands, Western Mexico.

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## ADDITIONAL REMARKS ON SELASPHORUS ALLENI.

BY H. W. HENSHAW.

IN his remarks on *Selasphorus alleni*, in the October number of the Bulletin, Mr. D. G. Elliot attempts to prove that in selecting this, the Green-backed,‡ or, as he calls it, the Californian form, for naming, I committed an error, this, according to him, being the bird described by Gmelin as the *Trochilus rufus*, and hence, as he claims, it was

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\* Five specimens measured, all from Mazatlan.

† Three specimens measured.

‡ In this article, by the Green-backed Hummer will be understood the recently recognized form from California ; the Rufous-backed bird being the old and better known form from Mexico and the West Coast generally. The coloring of the adult males renders these names sufficiently appropriate.



the other, or Rufous-backed, form which required christening. A careful perusal of Mr. Elliot's paper fails to convince me of my supposed mistake, and I think a short review of the matter with a few critical remarks on his paper, may be made to show that my critic is the one who has been misled into the erroneous identification of Gmelin's bird.

From lack of space, I refrain from quoting Gmelin's and Swainson's descriptions, nor will this be necessary. It may be stated, however, that the accounts of these authors, as well as Latham's, upon which Gmelin's was based, apply in every particular to the Rufous-backed bird, the assumption that it was this form these writers intended to describe not being controverted by a word in either. Mr. Elliot's opinion that it was the other or Green-backed form involved in their accounts is based chiefly on the fact of an omission, no mention being made of the notched rectrices which are present in the Rufous-backed form, and also because the description of the outer tail-feathers is more applicable to the latter. That Gmelin and Swainson should have overlooked the notch in the rectrices next the middle pair will not appear so very singular in the light of the fact that it has since been repeatedly overlooked by authors with equal and perhaps better claims to accuracy than can be conceded to either of the above. Both Audubon and Baird, who describe the outer tail-feathers of their *S. rufus* in terms similar to the earlier writers, making no mention of notched rectrices, and both of whom, as my critic implies, must necessarily, therefore, have had the Green-backed bird under consideration, actually did have perfectly typical examples of the Rufous-backed bird. Audubon's type, at present in the Smithsonian, was before me when my article was written, as were also Professor Baird's specimens. They are all, with one exception, fine examples of the Rufous form. This exception is the adult male, No. 6059, mentioned by Professor Baird on page 134, Vol. IX, P. R. R. Reports, as having the back covered with metallic green. This specimen, as I ascertain by inspection, is the true Green-backed form, our *S. alleni*. Professor Baird appeared to regard this peculiar coloration as presenting merely a notable exception to the rule, and passes it by without further comment. His description was based on typical specimens of the Rufous form. The more recent authorities then, notwithstanding Mr. Elliot's opinion to the contrary, having overlooked the fact of a notch in the rectrix, it is not too much to suppose a similar result at the hands

of the earlier and, as a rule, far less particular compilers. The *particularly narrow* outer rectrices mentioned in all the accounts, upon which so much stress is laid by Mr. Elliot, by no means necessarily refers to the Green-backed form, though, as a matter of fact, the outer tail-feathers are much narrower in this species than in the other. The term is evidently one of contrast, the comparison being suggested by the extreme narrowness of the outer feathers as compared with the *inner*, which are really very broad. In fact, there was nothing else to invite this particularity here. There being but one species known to all these authors, there was hence no need of comparative diagnosis other than that suggested by the parts themselves.

Gould, in his Monograph of the *Trochilidae*, after describing what was unquestionably the true Rufous-backed bird of Gmelin, the male with its "back cinnamon brown," adds: "The above is the usual coloring, but I have occasionally seen fully adult males with the rich gorget in which the coloring of the back was totally different, being of a *golden green*,"\* and presenting so great a contrast as almost to induce a belief that they were of a different species." This latter allusion, as in the case of Professor Baird's, is without doubt to the Green-backed form, its peculiarities of color being evidently the only difference noted by him. His figures, it is true, do not show the notched rectrix belonging to the Rufous form, whence Mr. Elliot concludes that they must represent the other bird. But in color, as also, it is to be particularly noted, in the shape and size of the outer rectrices, they correspond exactly with the Rufous-back and differ irreconcilably from the Green-back. In short, they would not serve to identify the latter bird at all, but are good figures of the former in all respects except in the omission of the notch in the tail-feathers, in which particular they merely repeat the oversight of the other authors.

The Smithsonian possesses several specimens of the Rufous-backed form with its notched tail-feathers received directly from Mr. Gould. That his collection contained this form is therefore certain, if indeed further confirmatory proof were necessary. The peculiarity of the notched tail-feathers was simply overlooked.

But to return to the earlier writers; the selection of Gmelin's name is of itself suggestive that the bird he had in hand could

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\* Italics my own.

not have been the one with the bright green back. "*Trochilus rufus subtus exalbidus*" points at once to the Rufous-backed form. The other bird with the small amount of rufous below would scarcely have suggested this name. Referring to Swainson's account, which was, as Mr. Elliot remarks, in all probability based upon one of Gmelin's original specimens, possibly his type, we find his description beginning thus, "General tint of the upper plumage rufous or cinnamon, which covers the head, ears, neck, back, rump, upper tail-coverts, and margins of the tail-feathers. . . ." This applies perfectly to the Rufous-backed form, but in no wise meets the necessities of the other bird. For while color is not the most desirable test, and may often prove unreliable, yet in the case of the males of these two birds the variation in color, while considerable, as pointed out in my former article, is never sufficient to obliterate their specific distinctness. They may be invariably told by the color of the back alone.

Mr. Elliot appears to have overlooked much of Swainson's article. For in his remarks that author states, after indicating that he has before him one of Gmelin's original specimens as correctly quoted by Mr. Elliot, "We are likewise able to vouch for its geographic range to the southward as far as the table-land of Mexico, near Real del Monte; specimens from that part having been obligingly sent us for examination. . . ." Thus Swainson vouches for the identity of Gmelin's original specimen, perhaps type, with the Mexican form, which is, as Mr. Elliot says, the Rufous-backed bird. Could stronger proof be asked?

Mr. Elliot's discrimination in the color of the ruffs of the two species I have not been able to verify. The differences he appears to have found in his specimens I am sure, after having examined numerous individuals, are not constant, and hence are of no use as diagnostic features. Mr. Elliot says, "I do not think that the females have any metallic feathers on the throat." In this he is mistaken. Adult females *invariably* have a metallic patch on the median line of the throat. The young males are very differently marked, and have the metallic feathers, which become brownish towards the chin, distributed quite evenly over the throat, the space occupied by them often indicating the extent of the ruff of the following year. The young females alone have the throat almost immaculate, or faintly flecked with brown.

RANGE. We have no proof at the present time showing that the

Green-backed form, *S. alleni*, extends north of California. Some pretty strong evidence to the contrary, of a negative character, may be advanced. The Smithsonian collection contains quite a number of specimens of the Rufous bird from Oregon, Washington Territory, Vancouver Island, and Sitka, a region faunally quite the same as Nootka Sound, which is on the southwestern shore of Vancouver Island. The presumptive evidence is quite strong that if the Green-backed form were really present it would have appeared in the numerous collections from this region received by the Smithsonian. From the above proof it seems clear that Gmelin's bird was the Rufous-backed form, which of course retains his name *rufus*, thus leaving to the Green-backed form the name *Selasphorus alleni* given by me in the July number of this Bulletin (Vol. II, No. 2).

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## DESCRIPTIONS OF THE FIRST PLUMAGE IN VARIOUS SPECIES OF NORTH AMERICAN BIRDS.

BY WILLIAM BREWSTER.

### I.

THE first plumage assumed by nearly all young *Altrices* (birds which are reared in the nest) at or about the time of leaving the nest, though representing a universal, and, in the majority of cases, well-defined stage, has been almost entirely ignored by Ornithological writers, or, if referred to at all, in such comprehensive and indefinite terms as to afford information of little distinctive value. Thus under the general term "young," we find described sometimes the *real nestling*, but more frequently the *young in autumnal dress*.

My attention was called to this fact some years since by the extreme difficulty, and too often impossibility, of identifying by "the books" nestlings of even the commoner species. I have since given special care to the acquisition of series of specimens representing *all* the stages through which birds pass in arriving at maturity, and it is proposed in the course of the present paper to treat, as fully as may seem necessary, some hitherto undescribed plumages of North American birds, and also in certain instances to clear up the confu-



sion that has previously resulted either from misapprehension, or from a too free use of certain distinctive terms.

While it is to be regretted that the specimens at hand do not furnish full series of even all the commoner species, it is nevertheless hoped that, by calling attention to this hitherto neglected field, an impetus will be given to future investigation that may result in a more complete knowledge of the subject than can here be presented. Before proceeding to a detailed consideration of specimens it may prove of interest to state briefly a few generalizations regarding the comparative development of the young in different families of birds.

Among North American *Altrices* the young of most species are born with thin patches of delicate, soft down, restricted mainly to the feather-tracts. Beneath this fluffy down the feathers are already forming; these soon appear, bearing at their summits the little tufts of down that formed the down-patches. Meanwhile the remiges and rectrices have started, and, growing with marvellous rapidity, the bird is soon able to take wing. The contour-feathers have now also nearly reached their full growth, and differ in both structure and color from the later stages of plumage, these feathers being softer and of a more open texture than those that succeed them. This is the stage of plumage technically characterized throughout the following paper as the *first plumage*. Though evanescent, it is usually worn for several weeks after the bird has left the nest. It is then *moulted*, and the regular autumnal plumage succeeds.

The remiges and rectrices are, however, nearly always *retained until the next regular moult*, exceptions to this rule being afforded by the families *Tetraonidae* and *Picidae* and the genus *Philohela*, and probably by a few other groups, in which the remiges and rectrices are moulted with the rest of the first plumage.

The early tegumentary development of most *Præcoces* (birds whose young run about at birth) is quite different: they are densely clothed with down until of large size, when, coincident with the sprouting and growth of the remiges and rectrices, the feathers of the full autumnal plumage appear. In short, the first plumage of *Altricial* birds seems to be omitted or perhaps replaced in the *Præcoces* by their more complete and longer worn, downy plumage. A few conspicuous exceptions occur among both groups. Thus, many *Raptores* differ from the *Altrices* in being densely clothed with

down from birth until of large size, when the autumnal plumage is immediately assumed; while among *Præcoces* the young of the *Tetraonidae*, of *Philohela minor*, and of some of the *Rallidae* (well illustrated by a good suite of *Rallus virginianus*), pass in succession through two well-defined primal stages, — the downy one characterizing their own group and the first plumage of *Altrices*. In the *Anatidae*, and probably some other *Natatores*, the remiges and rectrices are not developed until the young bird is almost fully grown and the autumnal clothing-plumage nearly perfect. A few families, as the *Ardeidae*, have not been fully investigated, and may furnish additional interesting exceptions.

In concluding these prefatory remarks, I wish to gratefully acknowledge an act of generosity on the part of Mr. Robert Ridgway. He had some time since made investigations respecting the early stages of plumage of birds, and had even sent descriptions of the first plumage of some North American Warblers for publication in the "Bulletin," when, learning of my prior researches and somewhat more extensive material, he very kindly withdrew his paper and placed the whole result of his work in my hands, thus enabling me to add a number of species not represented in my collection. The descriptions of these are presented in Mr. Ridgway's own words, and indicated by quotation marks and his initials. I desire also to express my thanks to my friend Mr. J. A. Allen for valuable suggestions and information.

### 1. *Turdus mustelinus*.

*First plumage*: female. Generally similar to adult, but with the feathers of crown streaked centrally with buff; "rusty-yellow triangular spots at the ends of the wing-coverts and a decided brownish-yellow wash on the breast." From a specimen in my collection, shot by Mr. W. D. Scott at Coalburgh, West Virginia, July 25, 1872. This bird is perhaps a little past the first stage of plumage, most of the feathers of the upper parts being those of the autumnal dress.

### 2. *Turdus pallasi*.

*First plumage*: female. Remiges and rectrices as in adult, but darker and duller; rump and tail-coverts bright rusty-yellow; rest of upper parts, including wing-coverts, dark reddish-brown, each feather with a central tear-shaped spot of golden-yellow: entire under parts rich buff, fading to soiled white on abdomen and anal region; each feather on jugulum and breast broadly tipped with dull black, so broadly, indeed, that this color covers nearly four fifths of the parts where it occurs; rest of under parts, with exception of abdomen and crissum, which with the



central region of the throat are immaculate, crossed transversely with lines of dull black. From a specimen in my collection shot at Upton, Me., June 20, 1873. This bird was very young, — scarcely able to fly, in fact, — yet the color of the rectrices is sufficiently characteristic to separate it at once from the corresponding stage of *T. swainsoni*, which it otherwise closely resembles. Another specimen of apparently nearly the same age, taken at Rye Beach, N. H., July 25, 1872, differs in having a decided reddish or rusty wash over the entire plumage, and by the spots on the breast being brownish instead of black.

### 3. *Turdus swainsoni*.

*First plumage*: male. Above much darker than adult, each feather, excepting on rump and tail-coverts, with a tear-shaped spot of rich buff: beneath like adult, but rather more darkly and thickly spotted on the breast, and with narrow terminal bands of dull black on the feathers of the lower breast and sides. From a specimen in my collection shot at Upton, Me., August 4, 1874.

### 4. *Turdus fuscescens*.

*First plumage*: female. Above bright reddish-buff, deepest on back and rump: feathers of pileum, nape, back, and wing-coverts margined with dark brown, confining the lighter color to somewhat indefinitely defined central drop-shaped spots. Lores and line from lower mandible along sides of throat, dark sooty-brown: throat, sides; and abdomen pale brownish-yellow with indistinct transverse bands of brown; breast deep buff, each feather edged broadly with dull sooty-brown; anal region dirty white. In my collection, taken in Cambridge, Mass., July 23, 1874.

### 5. *Mimus carolinensis*.

*First plumage*: male. Pileum dull sooty-brown, many shades lighter than in adult. Wings and tail as in adult; interscapular region brownish-ashy, shading into pale cinnamon-brown on the rump. Entire under parts barred obscurely with dull brown on a very light ashy ground; crissum pale, dead cinnamon. In my collection from Cambridge, Mass., August 9, 1875.

### 6. *Harporhynchus rufus*.

*First plumage*. Generally similar to adult, but with the spots on the under parts much thicker, more diffuse, and dull black instead of reddish-brown. The pileum is slightly obscured by a blackish wash; the rump rich golden-brown, and the spotting on the wing-coverts fawn-color. From specimens in my collection obtained at Cambridge, July 13, 1874.

Fall specimens differ from full-plumaged spring birds in having the upper parts of a darker, richer red, with a much stronger rufous wash on the under parts.

7. *Sialia sialis*.

*First plumage*: female. Above dull smoky-brown, unmarked on head and rump, the latter slightly paler; but marked over the interscapular region and wing-coverts by tear-shaped spots of white and pale fawn-color, these spots occupying the central portions of the feathers. Secondaries and tertiaries edged, and tipped with reddish-brown; first primary and lateral pair of rectrices with the outer webs pure white; inner primaries as in adult, but with the blue of a much lighter shade; posterior margin of eye with a crescentic spot of soiled white. Under parts, with the exception of the abdominal region, which is nearly immaculate, pale ashy-white, each feather broadly margined with dull cinnamon-brown. From a specimen in my collection, shot at Cambridge, Mass., June 8, 1874.

8. *Regulus satrapa*.

*First plumage*: female. Pileum (including forehead) dark smoky-brown; line over the eye entirely cut off at its anterior corner by the junction of the dusky lores with the brown of the forehead; tertiaries broadly tipped with white; breast strongly washed with pale fawn-color; otherwise like adult. From a specimen in my collection taken at Upton, Me., August 25, 1874. A young male taken August 25, 1873, is in every way similar. A good series of specimens of various ages shot during August and the early part of September illustrate well the transitional stages. First the brown of the pileum darkens into two black stripes, while the line over the eye broadens to meet its external margin. Next, two lines of yellow feathers appear inside and parallel with the black ones, while the orange of the central space (of the male) is produced last.

9. *Polioptila cærulea*.

*First plumage*: male (?). Rectrices as in the adult; remiges paler, with a much broader and whiter edging on the tertials; rest of upper parts pale mouse-color with a strong wash of light cinnamon. Entire under parts grayish-white or pale lead-color. In my collection, from Kanawha Co., West Va., June, 1872.

10. *Lophophanes bicolor*.

*First plumage*: male. Above dull ashy, *frontal band scarcely darker*; sides deep salmon-color. Otherwise like adult. From specimens in my collection obtained by Mr. W. D. Scott at Coalburgh, West Va., July 20, 1872.

11. *Parus atricapillus*.

*First plumage*: male. Back very dark slate without any tinge of brownish. Beneath salmon-color, faintest on breast, most pronounced on sides and anal region. The black on throat and pileum scarcely less clear than in adult. From specimen in my collection shot at Concord, Mass., June 17, 1871.

From about the time of pairing in spring till early autumn this Titmouse wears a plumage which has been almost, if not entirely, ignored by writers. The back is clear ashy without any brownish or olivaceous washing except in a few specimens on the rump. The under parts are white, with barely a trace of faintest salmon on the sides of the body ; while the white margining on the remiges is much narrowed and on many of the feathers replaced by ashy. It may be objected that this generally paler condition is due to the wearing of the feathers consequent upon the continual passing of the birds in and out of their nesting cavities, but not all of the specimens before me *are in worn* plumage ; one pair, taken May 12, 1876, being in remarkably perfect dress. At all events, whatever the cause, this peculiar stage is so universally characteristic of all specimens (at least, New England ones) taken at this season, that it certainly merits a fuller recognition than it has up to this time received. Five specimens examined, all collected in Massachusetts in May or June.

#### 12. *Parus hudsonicus*.

*First plumage* : female. Above olivaceous-drab, becoming much darker and more dusky on crown. Sides and anal region *very pale* brownish-rusty. Otherwise like adult. From a specimen in my collection taken at Upton, Me., August 25, 1873. This bird is, strictly speaking, in a transitional stage, having already acquired many feathers of its fall dress. It differs sufficiently, however, from the perfected condition of the autumnal plumage to merit description under the above heading.

#### 13. *Parus rufescens*.

*First plumage* : male. Pileum, nape, and throat dark sooty-brown ; back dull chestnut, tinged with olive ; sides ashy, washed in places with brownish-chestnut. Otherwise, like adult. From a specimen in my collection obtained at Nicasio, Cal., by Mr. C. A. Allen, May 21, 1875.

#### 14. *Sitta canadensis*.

*First plumage* : female. Above ashy with just a shade of blue ; pileum dark ashy ; chin and throat dirty white ; rest of under parts *like spring adults*, but with a fainter and more general suffusion of rusty. From specimen in my collection taken at Upton, Me., July 31, 1874. In "History of Birds of North America" (Vol. I, p. 118) Mr. Ridgway, in giving the specific characters of this species, says : "The male has the chin white ; rest of under parts, brownish-rusty." Of the female, "beneath paler, more of a muddy white." Now, if I understand rightly by this that the *breeding plumage of the adult* is indicated, I am confident that the description, so far as it relates to the male, is incorrect. From the examination of a large series of specimens, collected in every stage of plumage and at nearly all seasons, I am led to believe that Mr. Ridgway's description is applicable only to the male *in full autumnal dress*, — a mistake most easily committed when it is considered

that this plumage is worn through the winter months, or nearly up to the commencement of the breeding season, as is shown by specimens shot on the migration through Massachusetts in April. It will be seen by a comparison of the following descriptions that the brightest plumage is reached in *autumnal specimens*, a case parallel with that of *Parus atricapillus*. Hence I have judged it best to redescribe the spring or breeding plumage, using Mr. Ridgway's words so far as they are definitely applicable. The autumnal plumage is presented, I believe, for the first time.

*Breeding plumage*: Adult male. "Above ashy-blue: top of head black: a white line above and a black one through the eye." Entire under parts *dirty white*, tinged *very slightly* with pale rusty on breast, sides, abdomen, and crissum. From specimen in my collection shot at Upton, Me., May 31, 1871.

Adult female. With black of head scarcely duller than in the male: beneath similar, *perhaps a trifle less rusty*. From specimen in my collection obtained on Muskeget Island, Mass., June 30, 1870. It is very possible that this bird represents a development of plumage only exceptionally attained by the female; I have seen no other specimen of that sex with the color of the crown so nearly approaching that of the male.

*Autumnal plumage of young*: male. Upper parts as in breeding adults, the ash-blue a little clearer and brighter. Chin white; rest of under parts brownish-rusty, paler on throat and intensifying into light chestnut on sides. A narrow line down centre of abdomen pure white (this last feature, though characteristic of most specimens, is wanting in a few). From a specimen in my collection shot at Upton, Me., September 7, 1874. ♀ Female. Pileum dark ashy mixed with black. Otherwise similar to male and scarcely lighter beneath. From specimen in my collection shot at Upton, Me., September 12, 1874.

The adult in autumn is paler beneath than the young.

#### 15. *Thryothorus ludovicianus*.

*First plumage*: male. Top of head dark rusty, each feather edged and tipped broadly with dull black, the former color nearly eliminated by the latter on the crown and forehead. Under parts nearly as in adult, but more cinnamoneous; a few narrow, wavy, and somewhat badly defined transverse lines of black across the breast and abdomen. From a specimen in my collection shot at Petroleum, West Va., May 1, 1874.

#### 16. *Troglodytes aëdon*.

*First plumage*: female. Upper parts more reddish than in adult: throat, jugulum, and breast pale fulvous-white, each feather on breast tipped with pale drab, giving that part of the plumage a delicately scutellate appearance. Abdomen whitish; sides, anal region, and crissum dull rusty-brown, becoming almost chestnut on the crissum. No trace of bars on feathers of the body either above or beneath. From specimen in my collection shot at Cambridge, Mass., July 9, 1873.



17. *Troglodytes parvulus* var. *hyemalis*.

*First plumage*: male. Remiges, rectrices, etc., as in adult; rest of upper parts dark reddish-brown, becoming more dusky anteriorly: no trace of bars except on wings and tail. Beneath dull smoky-brown, with a strong ferruginous suffusion on sides, anal region, and crissum; every feather of under parts with a bar of dark brown. From a specimen in my collection taken at Upton, Me., August 4, 1874.

18. *Telmatodytes palustris*.

*First plumage*: female. Entire pileum, nape, and interscapular region dull black; no white streaking or spots; otherwise like adult. From specimen in my collection taken at Cambridge, August 10, 1873.

19. *Cistothorus stellaris*.

*Autumnal plumage*: young male. Above similar to adult, but darker, especially on nape and pileum. Throat and abdomen light buff; breast, sides, anal region, and crissum rusty-brown, paler and with white tip-pings to the feathers anteriorly. From a specimen in my collection shot at Cambridge, Mass., September 19, 1870.

20. *Mniotilta varia*.

*First plumage*. Similar in general appearance to the adult female, but markings, especially the two stripes of the pileum and the streaks beneath, much less sharply defined; the streaks of the breast indistinct grayish-dusky, suffused with pale fulvous, those of the back more strongly tinged with rusty. The two stripes on the pileum dull grayish-dusky, instead of deep black. From a specimen in my collection obtained near Washington, July, 1876." — R. R.

21. *Parula americana*.

*First plumage*: male. Remiges, rectrices, etc., as in the adult. Pileum, nape, rump, and upper tail-coverts dull gray, tinged with olive anteriorly and with blue posteriorly, the back with more or less of an indistinct patch of olive-green; throat and eyelids grayish-white, abdomen, anal region, and crissum pure white: jugulum and sides of breast pale ash-gray. From two specimens obtained at Mt. Carmel, Ill., July 17, 1871, Nos. 1457 and 1563, my collection. Both of these show a large patch of bright gamboge-yellow on the breast, these feathers denoting the commencement of the adult plumage. One of them also has the chin and an indistinct supraloral line tinged with yellow." — R. R.

22. *Protonotaria citrea*.

*First plumage*. Remiges, rectrices, primary coverts, and alulæ as in the adult. Entire abdomen, anal region, and crissum white; head, neck, back, and jugulum pale greenish-olive, the throat and jugulum paler and

more olive, the upper parts brighter and more greenish ; rump and upper tail-coverts plumbous-gray. From a specimen killed at Mt. Carmel, Ill., July 22, 1875 ; in my collection. In this specimen a large patch on each side the breast is bright gamboge-yellow (as is also a row of 'pin-feathers' along the middle of the throat), indicating the adult plumage."—R. R.

### 23. *Helmitherus vermivorus*.

♂. "*First plumage*. Remiges, rectrices, primary coverts, and alulæ as in the adult. Rest of the plumage, including the whole back, lesser, middle, and greater wing-coverts, buff, deeper below, more brownish on the back and base of the wing-coverts. Pileum with two badly defined stripes of grayish-brown, and a narrow streak of the same behind the eye. From a specimen in Mr. Henshaw's collection obtained near Washington in July, 1876."—R. R.

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## AN INADEQUATE "THEORY OF BIRDS' NESTS."

BY J. A. ALLEN.

WHY the thousands of species of birds build each a peculiar nest, differing more or less in situation and architecture from those of all other species, is a question which has as yet received no satisfactory answer. As a rule, the nest, including its location, the materials and manner of its construction, is as distinctive of the species as the number, size, form, and color of the eggs, or, in some instances, as any fact in its history, not excepting even the details of structure and coloration of the bird itself. Why this is so we can perhaps explain when we can satisfactorily account for the diversity of song that is scarcely less a specific characteristic. Yet the structure and position of the nest, even among birds of the same species, is more or less varied by circumstances, sometimes even to a striking degree. In some cases the influence of peculiar surroundings is most obvious, as when, for instance, a species that habitually nests in trees, like the Carolina Dove, is found in treeless regions to place its nest on the ground, or when a Woodpecker, under similar circumstances, excavates for its nesting-site a cavity in a clay-bank. Not unfrequently birds exhibit in their choice of nesting-sites something quite akin to intelligent foresight, as is manifestly the case when such species as the Brown Thrush and



the Canada Goose, that commonly nest on the ground, place their nests in bushes or trees in localities subject to sudden inundation. Many species, profiting by dearly bought experience, will abandon, in consequence of persistent persecution, long-occupied breeding-grounds for those more remote from danger. A remarkable instance of change in breeding habits from this cause is afforded by the Herring Gull, which, to escape its human foes, has been known to depart so widely from its usual habit of nesting on the open seashore as to place its nest in trees in more or less inland swamps. That birds have the power to grapple intelligently with unexpected emergencies has been repeatedly shown, a most striking instance being afforded by the Baltimore Oriole, which has been observed to repair a half-demolished nest by weaving one end of a string into the weaker side and fastening the other end taut to a branch above. The fact that various species of Swallows, the Wren, Chimney Swift, and some other of our native birds which originally nested in deserted Woodpeckers' holes or hollow trees, abandon such nesting-sites for the better ones accidentally or intentionally provided by man, shows that they are by no means the slaves of "blind instinct," but are able to take advantage of favoring circumstances.

The materials used by birds in forming their nests, it has been assumed, are those nearest at hand or most easy to obtain, or such as their peculiar habits chance to render them most familiar with, and that the mode of nidification depends upon their constructive ability,—upon the "tools" with which nature has provided them. This is undoubtedly to a great degree true, for it would be hard to conceive of the construction of an elaborate nest by any members of the Whippoorwill or Night-Hawk family, whose bills are excessively weak and small, and whose feet are unfitted for walking or perching, being barely able to support them on a flat surface. Hence we are not surprised that they place their eggs on the ground without the provision of a nest. Many other groups of birds are almost equally incapable of building nests. But among species equally furnished with the means for elaborate nest-making, there is the greatest diversity in the results of their architectural labors. Even when the materials employed by different species chance to be the same, the structures resulting from their use bear the impress of different architects. Nests of the same species also vary greatly at different localities in consequence of the materials

most readily available for their construction being not everywhere the same ; they also vary in accordance with the climatic conditions of the locality, the same species building a quite different nest, as respects warmth and stability, in the colder portions of its habitat from that which it constructs in the warmer portions.

But while these deviations under diverse circumstances readily explain variation in the situation and character of the nests of the same species, they fail to explain why closely allied species, living together under precisely the same conditions of environment, and sometimes so closely resembling each other in size, color, and all external characters as to require the eye of an expert to detect their specific diversity, should build totally unlike nests, and display almost the widest possible differences in respect to their situation. To cite, in illustration, a single example from the many that might be given, we may instance our common Pewees and Flycatchers. In this small group we find a wide range of diversity in breeding habits among species most intimately related in structure and general habits. The Least Pewee builds a small, compact, felted nest of fine soft materials, and its nearest allies, the Acadian and Traill's, build far ruder and much more bulky structures of coarse grasses, strips of bark, and other similar materials. Another near relative of these species, the Wood Pewee, selects for its nesting-site a lichen-covered dead branch, on which to saddle its small, highly artistic, cup-shaped nest, covered externally with lichens glued to the surface in such a manner as to render the structure almost indistinguishable from a natural protuberance of the branch itself. The Bridge Pewee, another allied species, builds a large bulky nest, formed outwardly of a heavy layer of mud, copiously lined with dry grass and feathers, and shelters it in the chinks of walls, under shelving rocks, in sheds, outbuildings, and under bridges. The Great-crested Flycatcher chooses hollow trees or deserted Woodpeckers' holes in which to form its nest and deposit its eggs, while its allies, the Kingbirds (genus *Tyrannus*), build large open nests, which they make no attempt to conceal.

Notwithstanding all this diversity of situation and structure among closely allied species, birds' nests have been divided into two classes, according to "whether the contents (eggs, young, or sitting bird) are hidden or exposed to view," and the broad generalization based thereon that the character of the nest is intimately related to the color of the female parent-bird. This, in fact, is Mr.

Wallace's "Theory of Birds' Nests." \* This "theory" has for its basis the assumed "law which connects the colors of female birds with the mode of nidification." Mr. Wallace states it to be a rule, open to "but few exceptions," "that when both sexes are of strikingly gay and conspicuous colors, the nest is . . . such as to conceal the sitting bird ; while, whenever there is a striking contrast of colors, the male being gay and conspicuous and the female dull and obscure, the nest is open and the sitting bird exposed to view." He cites as examples of the first class, or those in which the female is conspicuously colored and the nest concealed or covered, "six important families of *Fissirostres*, four of *Scansores*, the *Psittaci*, and several genera and three entire families of *Passeres*, comprising about twelve hundred species, or about one seventh of all known birds." This statement, however, proves on examination to be quite too sweeping, since a large proportion of the species here named either do not have a concealed nest, or are of sombre and obscure tints. There are also other entire families and various additional genera, in which the males are brilliantly and the females obscurely colored, which build a domed nest. I now propose, so far as the limits of a short article will allow, to test this theory by a rapid survey of the birds of North America, — an area certainly large enough to afford a fair basis of judgment. For this purpose I shall consider the modes of nidification under four heads, namely, (1) nidification in holes in trees ; (2) in burrows ; (3) domed, pensile, or otherwise more or less "covered" nests ; and (4) nests wholly open.

1. Among North American birds those that habitually nest in holes in trees embrace several species of the smaller Owls, one or two kinds of small Hawks, all the various species of Woodpeckers, all the numerous species of Titmice of the genera *Lophophanes* and *Parus*, the several species of Nuthatches, the Brown Creeper, some of the Wrens, the Bluebirds (three species of *Sialia*), several species of Swallows, Martins, and Swifts, the Great-crested Flycatcher, the Carolina Paroquet, and three or four species of Ducks. In very few of these can the colors be considered as "strikingly gay and conspicuous," and when this is the case, as in the Bluebirds, a few of

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\* Originally published in the *Intellectual Observer* of July, 1867, and republished with additions in 1870 in a collection of essays entitled "Contributions to the Theory of Natural Selection," and alluded to in more recent articles by the same author, including his recent paper on "The Colors of Animals and Plants."

the Woodpeckers, some of the Swallows, the Wood-Duck, the Hooded Merganser and the Buffle-head, the females are much paler and duller colored than the males. In many other instances the colors are in the highest degree adapted for concealment under every circumstance, and especially in a sitting female bird, as, for instance, in the Brown Creeper, the Wrens, some of the Titmice, the Swifts, and various others.<sup>1</sup>

2. The burrowing species embrace the Prairie Owl, the Kingfishers, two species of Sand Martin or Bank Swallow, the Petrels, various species of Auks and Puffins, and some of the Guillemots. The Kingfishers possibly excepted, almost none of these have bright or conspicuous colors, while in several the colors could scarcely be better adapted for concealment. Especially is this the case with the Owl and Sand Martins, with their dull neutral tints.

3. Among the comparatively few species that build a covered or domed nest are the ground-building Golden-crowned Wagtail or "Oven-Bird," the Dipper or Water-Ousel, the Meadow Lark, the common Quail, and several Warblers. The first two of these have tints peculiarly adapted for concealment, and the colors of the dorsal area in the others are likewise "protective." Among the species building covered nests in reeds, bushes, or low trees, are Marsh Wrens, some of the other Wrens, the smaller Tits (genera *Psaltriparus*, *Auriparus*, etc.), several of the Warblers (family *Sylviolidae*), the Magpie, and perhaps a very few others. Of these the Wrens and Tits are all obscurely or protectively colored, and have no "surprisingly gay and conspicuous" tints. Some of the Warblers are more brightly colored, and a few have rather conspicuous markings; but these features are almost wholly confined to the male, the females being of comparatively dull and obscure tints. The Magpie has showy colors and a very long tail, and the bulky nest, wholly concealing the sitting bird, may be useful in hiding these otherwise betraying features. The species which build hanging, purse-shaped, or subpensile nests are the Orioles and Vireos. In the case of the former the nest is most illy adapted for protection from the most dangerous foes of the species, the predatory Crows, Jays, and Cuckoos, being often a conspicuous object, with, so far as the United States species are concerned, no compensating feature of security. Here again, while the males are in some instances arrayed in "strikingly gay and conspicuous colors," the females do not to any great extent share their bright hues, the sexual differences in



color among our native birds being rarely greater than in these species. The subpensile nests of some of the Vireos are to be perhaps more properly referred to the type of open nests. In either case we find only slight sexual difference in color, with the olivaceous hue of the back well fitted for concealing the female bird. But this is in part offset by the usually light color and somewhat exposed situation of the nest.

4. The great bulk of the species fall of course into the fourth category, or those with the nest open. These embrace (with two exceptions, the Woodpeckers and the Kingfishers) birds of every family represented in our fauna, and are about equally divided between ground-builders and those which nest in bushes or trees. As a rule (as, in fact, throughout the class of birds) in those arrayed in conspicuous tints the females are obscurely colored, in comparison with the males. Yet to this rule there are exceptions, as notably among the Jays, some of which do have "surprisingly gay and conspicuous colors," and among which both sexes are equally brilliant. The shining black color of the Crows, the Raven, and some of the Blackbirds are equally or (in the latter) almost equally shared by both sexes, while the color is by no means well adapted to concealment. In many species the males, even when brightly colored, share with the females the duties of incubation. This is the case with the Rose-breasted Grosbeak, in which the male is most conspicuously colored, and who not only shares the labor of incubation, but has the most injudicious habit of indulging in loud song while sitting on the nest. In many of our ground-nesting Sparrows the sexes, in respect to coloration, are wholly indistinguishable; their obscure colors, arranged generally in streaks and spots, are certainly in the highest degree protective; their nests, although not domed, or even "covered," in the strict sense of the term, are generally most effectually concealed under tufts of herbage, and are hence far better shielded from observation than the pensile, domed, or bulky, covered nests that are regarded by our author as so highly conducive to security through the concealment of the eggs and young or the sitting female.

Among the groups instanced by Mr. Wallace as building open nests are "the extensive families of the Warblers (*Sylviadæ*), Thrushes (*Turdidæ*), Flycatchers (*Muscicapidæ*), and Shrikes (*Laniadæ*)." While in a considerable proportion of the species of these groups the males are "beautifully marked with gay and con-

spicuous tints," "in every case the females are less gay, and are most frequently of the very plainest and least conspicuous hues. Now," he continues, "throughout *the whole of these families the nest is open*,\* and I am not aware of a single instance in which any one of these birds builds a *domed nest*, or places it in a *hole of a tree*, or *under ground*, or in any place where it is effectually concealed." As regards the North American representatives of these groups, there are frequent exceptions to this rule, as I have already shown, and that Mr. Wallace did not know of exceptions only shows that his examination of the subject must have been very superficial. As further evidence of the imperfection and inexactness of Mr. Wallace's knowledge of the subject concerning which he theorizes so boldly and speaks so emphatically, may be cited his remark about the *Icteride*, or "Hangnests." "The red or yellow and black plumage of most of these birds," he says, "is very conspicuous, and is exactly alike in both sexes. They are celebrated for their fine purse-shaped pensile nests." As regards the facts of the case, there is no family of Passerine birds where the sexes, *as a rule*, are more widely different, the difference affecting not merely color, but also size, the females being not only much duller colored than the males, but much smaller. The instances in which both sexes are equally brilliant are the exceptions.

To summarize the foregoing remarks, it has been shown, so far as the birds of North America are concerned (and the same could easily be shown for other equally extensive regions), that the species which breed in holes in trees, in burrows in the ground, or in domed, pensile, or covered nests, are as often dull, obscurely colored species as bright-colored; that when the species are conspicuously colored, it is generally only the male that is attired in strikingly gay tints, the females having comparatively dull colors; and that often species in which both sexes are clothed in bright and equally conspicuous tints build an open nest; while the "theory" demands just the opposite of these conditions. In other words, that birds nest in holes, in open or in covered nests, without regard to whether the female is brightly or obscurely colored. Furthermore, that pensile and bulky covered nests are far more open to discovery than ordinary open nests, so that the advantage of having the contents concealed, be it eggs, young, or the female parent, is more

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\* The italicized portions are as in the original.



than counterbalanced by the readiness with which the nest itself is discovered.

Not to do Mr. Wallace or his theory injustice, it may be added that he has instanced a considerable number of large families of birds, found outside of North America, in which the species nest in hollow trees, and in which both sexes do have "surprisingly gay and conspicuous colors." Among these are the Trogons, the Barbets, the Puff-birds, the Toucans, and the great group of Parrots and Paroquets. But Mr. Wallace has himself given an apparently far better reason for this method of nidification in some of these groups than that involved in his above-given theory, namely, that they have not the necessary "tools" for the construction of an elaborate nest. Most of them are weak-footed and sedentary, while in other cases the form of the bill renders the construction of a nest almost impossible. Another large group, the species of which nest in holes in trees, are the Woodpeckers. Here an obvious and far more rational explanation is apparent than that afforded by the theory of concealment, for here the scores of dull-plumaged, sombre-colored species nest in holes just as do those that are conspicuously attired. In this group the species do not seek cavities already at hand, as is the case in some of the groups just cited, but form them themselves, and use them not only for purposes of nidification, but often more or less habitually as places of shelter. Nothing seems more natural than that they should avail themselves in this way of the advantages afforded them by their powerful chisel-shaped beaks, which they are constantly using as an abrading or "digging" organ in their search for food. The same explanation holds equally good for the plainly colored Tits that nidificate in holes that they themselves have the power of forming.

The Anks, Puffins, and some of the Guillemots are among the species I have cited as breeding in burrows. As they are species (occasionally conspicuous markings about the bill or head excepted) of neutral or obscure tints, — particularly as respects the exposed dorsal area of the sitting female, — their resorting to burrows is hardly necessary for concealment, since these species have no "strikingly gay" attire of plumage that would render the sitting bird in any case conspicuous. Such resorts, however, prove to be to them a great source of security, and give them an immense advantage over other species of the same family that breed at the same localities with them, but in a wholly exposed manner. The

chief enemy of these birds is man, by whom they are robbed of their eggs in a most brutal and wholesale way. The species that breed in deep crevices in the rocks almost wholly escape the rapacity of their human foes, the eggs being almost invariably, it is said, placed beyond reach, while those (some of the Guillemots) that deposit their eggs on the surface are robbed almost to extermination. The dull, thoroughly protective colors of the Burrowing Owls, of which there are several species, render them often difficult objects to discover even when wholly exposed, yet they nidificate in deserted marmot holes, and there find security against the attacks of predatory skunks and foxes, to which they would be exposed if nesting on the ground, — usually the only other alternative in the localities they inhabit. In fact, instances might be multiplied in which the breeding of birds in holes in trees, or in the earth, or in otherwise concealed nests, might be explained more rationally than by the theory of concealment of a brightly colored female parent, — the basis of Mr. Wallace's ingenious "Theory of Birds' Nests," — namely, security from enemies through other means than simply concealment.

Mr. Wallace, in commenting on "What the Facts Teach us" in relation to this theory, argues that the differences in color between the sexes in birds that build an open nest may have been brought about by the bright-colored females being weeded out or eliminated in consequence of being more exposed to the attacks of enemies, since any modification of color which rendered them more conspicuous would lead to their destruction and that of their offspring, while the attainment of inconspicuous tints would tend to their preservation. Hence this theory is intimately connected with, or in part based upon, Mr. Darwin's theory of "sexual selection," which Mr. Wallace at this time accepted, but which he has recently had the better judgment to discard as an inadequate explanation of sexual differences in color among animals.

The most surprising thing about Mr. Wallace's "Theory of Birds' Nests"\* is its inadequacy, and its irrelevancy to the facts it was proposed to explain, and in this respect it is scarcely excelled by any of the crude inventions into which the more ardent supporters of the

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\* I wish to here state explicitly that I refer in these remarks wholly to Mr. Wallace's "Theory of Birds' Nests," and not to his most admirable essay on "The Philosophy of Birds' Nests," which is replete with sound sense, and to nearly every syllable of which I most heartily subscribe.

theory of evolution by means of what has been termed "natural selection" and "sexual selection" have been betrayed.

In conclusion, I desire to call attention to an interesting coincidence between the manner of nesting among birds and the color of the eggs, and one so striking that it is almost surprising that some ingenious theorist has not seized upon it as a basis for a "theory of birds' nests," either independently or as a modification of that proposed by Mr. Wallace. It curiously happens that nearly all birds that nest in holes, either in the ground or in trees, lay *white eggs*, embracing, for instance, all the Woodpeckers, Kingfishers, Bee-eaters, Rollers, Hornbills, Barbets, Puff-Birds, Trogons, Toucans, Parrots, Paroquets, and Swifts, while only occasionally are the eggs white in species which build an open nest. In only two or three groups of land birds, co-ordinate with those just named, that build an open nest, are the eggs white, namely, the Owls, Humming-Birds, and Pigeons. On the other hand, in only two or three small groups of species that nidificate in holes are the eggs speckled or in any way colored. There is, in fact, a closer relationship, or rather a more uniform correlation, between the color of the eggs and the manner of nesting than between the color of the female parent and the concealment or exposure of the nest. There are, however, here apparently too many exceptions to bring this coincidence into the relation of cause and effect. It is perhaps rather comparable with the pattern of coloration that so often, to a greater or less degree, marks nearly all the species of a whole natural family, and often prevails throughout large genera, for which the conditions of environment offer no explanation, since it as often occurs in cosmopolitan groups as in those of local distribution, and which, in the present state of our knowledge, seems wholly inexplicable.

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#### BREEDING OF THE DUCK HAWK IN TREES.

BY N. S. GOSS.

As the *Falco communis* var. *anatum* is supposed to nest almost exclusively on high rocky cliffs, and rarely if ever in other situations, I think it will be of interest for me to say that I found in February, 1875, a pair nesting about three miles southeast of Neosho Falls, Kansas, in the timber on the banks of the Neosho

River. The nest was in a large sycamore, about fifty feet from the ground, in a trough-like cavity formed by the breaking off of a hollow limb near the body of the tree. I watched the pair closely, with the view of securing both the birds and their eggs. March 27 I became satisfied that the birds were sitting, and I shot the female, but was unable to get near enough to shoot the male. The next morning I hired a young man to climb the tree, who found three fresh eggs, laid on the fine soft rotten wood in a hollow worked out of the same to fit the body. There was no other material or lining, except a few feathers and down mixed with the decayed wood.

The ground-color of the eggs is grayish-ochre, spotted and blotched with dark reddish-brown, the blotches running together towards the large end, where they are a shade darker. Length, respectively, 2.20, 2.30, and 2.40; diameter of each, 1.70 inches.

March 17, 1876, I found a pair nesting on the opposite side of the river from the above-described nest, in a cottonwood, at least sixty feet from the ground, the birds entering a knot-hole in the tree, apparently not over five or six inches in diameter. The tree was very straight, and without limbs to the nest, and consequently out of reach. The birds were very noisy, but shy. I wounded both the birds, but failed to get them.

February 2, 1877, I noticed a pair flying into the same tree. April 9, I shot them both. I now have the three birds in my collection. The measurements, as taken from the birds when shot, are as follows:—

	Sex.	Length.	Stretch of Wing.	Wing.	Tail.	Tarsus.	Bill.
March 27, 1875....	♀	20.00	46.00	15.00	7.60	1.85	.95
April 9, 1877.....	♀	19.75	45.50	14.75	7.50	1.85	.95
April 9, 1877.....	♂	18.00	41.00	13.50	6.50	1.80	.90
Cere, .31.							

For a description of the species see "North American Birds," by Baird, Brewer, and Ridgway (Vol. III. p. 128). I will add: Iris, brown; bill, horn-blue, with the base pale green; cere and eyelids, greenish-yellow; legs and feet, lemon-yellow; claws, black.

April 30, 1877, I found a pair about four miles farther up the river, breeding in a hollow broken limb of a giant sycamore. From the actions of the birds, I think they had young. I feel confident they will nest there next season, and, if so, shall try very hard to procure the eggs.

The birds are very noisy while mating, but silent during incubation. The males, so far as noticed, sit upon the eggs in the fore part



of the day, the females during the latter part of the day, each, while off duty, occasionally feeding the other, but putting in a good share of the time as sentinels, perched upon a favorite dead limb near the nest, ready to give the alarm in case of approaching danger. At such times they scold rapidly, and manifest great anxiety and fear, circling overhead, occasionally alighting, and taking good care to keep out of reach. The fear of man is not without cause, for our hunters never lose an opportunity to shoot at them, knowing how destructive they are to the water-fowls found in the sloughs along the river-bottoms.

*Neosho Falls, Kansas.*

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## Recent Literature.

BIRDS OF THE VICINITY OF CINCINNATI. — Mr. F. W. Langdon's Catalogue of the Birds of the Vicinity of Cincinnati,\* embraces two hundred and seventy-nine species, about one third of which are marked as known to breed in the vicinity. The author gives notes respecting the times of migration, relative abundance, etc., of each species, and distinguishes those recorded in the list simply from their known range including the locality from those known to have been actually taken. They number about forty species, mainly Sandpipers, Plovers, and Terns, and embrace only such as are certainly likely to occur. The list is evidently prepared with care, and gives a convenient and undoubtedly trustworthy summary of the Avian Fauna of the locality of which it treats. — J. A. A.

BIRDS OF CENTRAL NEW YORK. — Through the kindness of the author we have received a catalogue of the birds of Cayuga, Seneca, and Wayne Counties, New York,† published in the "Auburn Daily Advertiser" (newspaper), of Auburn, New York. The list contains one hundred and

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\* A Catalogue of the Birds of the Vicinity of Cincinnati, with Notes. By Frank W. Langdon. 8vo. pp. 18. Salem, Mass.: The Naturalists' Agency. 1877.

† A Partial Catalogue of the Birds of Central New York, from observations taken in the Counties of Cayuga, Seneca, and Wayne by Mr. H. G. Fowler, of Auburn, N. Y., and from the Cabinet of Skins of New York Birds collected by Mr. J. B. Gilbert, of Penn Yan, Yates County. Divided and arranged in accordance with the "Check List of North American Birds," by Elliott Coues, M. D., U. S. A., and dedicated to the Cayuga Historical Society. By Frank B. Rathbun. Auburn Daily Advertiser (newspaper) of August 14, 1877.



ninety-one species, with brief notes on their relative abundance, times of migration, etc. The list bears evidence of trustworthiness, and we would gladly see it reproduced in a more permanent and accessible form. It appears to be a reprint of Mr. H. G. Fowler's list in "Forest and Stream" (Vols. VI and VII, 1876), with the addition of quite a number of species, and additional observations on others. In this list we find *Anthus ludovicianus* recorded as breeding ("a few remain and breed") in New York, the authority being Mr. J. B. Gilbert, of Penn Yan, Yates County, New York. We know not as yet on what evidence the record of so improbable an occurrence is made, but would suggest that it certainly needs strong backing, the locality being climatically and topographically so wholly unlike that usually chosen by this exceedingly boreal species as its breeding station. In a later issue of the same paper (September 6, 1877), Mr. Rathbun adds further remarks on *Dendroica cerulea*, and Dr. T. J. Wilson on sixteen species, including a few species not given by Mr. Rathbun. — J. A. A.

BROWN ON THE DISTRIBUTION OF BIRDS IN NORTH-EUROPEAN RUSSIA — During the last year (1877) Mr. J. A. Harvie Brown has contributed a series of important papers upon the distribution of birds in "North Russia,"\* in which all information at present accessible is epitomized in a series of tables through the use of arbitrary signs or "symbols." The first paper relates to the region of the Lower Petchora, explored by himself and Mr. Seeborn, and is supplementary to a joint paper by these gentlemen published in the "Ibis" for 1876 (January, April, July, and October). Parts II and III treat of the general range of the birds in European Russia, north of the parallels of 58° to 60°, in which are presented in tabulated form the records relating to this extensive region. The area considered embraces (contrary to what the above-given titles might imply) only that portion of the Russian Empire west of the Ural Mountains, and north of about the latitude of St. Petersburg. This is divided latitudinally, near the parallel of 64° 30', into two regions, a northern and a southern, and these are again each divided longitudinally into three regions. By means of a system of symbols the range of each of the two hundred and eighty-one positively identified or *authentic* species is given in tables, in such a way as to indicate the abundance or scarcity of the species in each of the several districts. This system of presentation is perhaps as satisfactory as any that can be devised short of graphic repre-

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\* On the Distribution of Birds in North Russia. Part I. On the Distribution of Birds of the Lower Petchora, in Northeast Russia. Part II. Longitudinal Distribution of Species North of 64° 30' N. lat., or the Northern Division. Part III. On the Longitudinal Distribution of the Birds of the Southern Division (between 64½° N. and 58° - 60° N.). By J. A. Harvie Brown. Annals and Magazine of Natural History, April, July, and September, 1877.

sensation by maps, and is well worthy of careful consideration on the part of those interested in the detailed study of the geographical distribution of animals. In addition to the tables a descriptive list of authorities is given, to which references are made by numbers in the tables, as also a long list of "Notes and Criticisms of Doubtful Records," to which are also references in the tables. We have thus here presented the bibliography of the subject, a summary of the facts, and a critical discussion of doubtful records, based on a thorough elaboration of all accessible means of information. It is good work in a most important direction; the method is novel and ingenious, and the results may be grasped at a single glance. It is to be hoped that Mr. Brown will soon extend his labors to other regions, and that there will be presently numerous followers in the same line of research. The number of circumpolar species (nearly fifty) embraced in these lists render these papers of special interest to students who commonly confine their attention to the birds of the North American Region. — J. A. A.

† SUMMER BIRDS OF THE ADIRONDACKS. — Messrs. Roosevelt and Minot have published a very acceptable list of the summer birds of the Adirondacks,\* embracing ninety-seven species, with short notes respecting their abundance, — the first list known to us of the summer birds of this ornithologically little-explored region. — J. A. A.

BIRDS OF SOUTHERN ILLINOIS. — Ornithologists are indebted to Mr. E. W. Nelson for a second important paper on the "Birds of Illinois." † Although less elaborate and comprehensive than his former "Birds of Northeastern Illinois" (noticed in this Bulletin, Vol. II, p. 68), it contains much information respecting the distribution, habits, and relative abundance of the summer birds of the southern portion of the same State. It is based on observations made chiefly in July and August, and gives partial lists of the birds of several localities in Richland and Union Counties, embracing altogether notices of one hundred and thirty-three species. Mr. Nelson left some months since for a protracted sojourn in Alaska, where, it is hoped, he will find leisure for much ornithological work in connection with his duties as United States Signal Officer at St. Michael's. His intelligent labors in Illinois lead us to expect that no opportunity of further increasing our knowledge of the ornithology of a region so little known as Alaska will be neglected. — J. A. A.

GENTRY'S "LIFE-HISTORIES OF THE BIRDS OF EASTERN PENNSYLVANIA." — Mr. Gentry has recently brought out the second volume of his

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\* The Summer Birds of the Adirondacks in Franklin County, N. Y. By Theodore Roosevelt, Jr., and H. D. Minot. 8vo. pp. 4. 1877.

† Notes upon Birds observed in Southern Illinois, between July 17 and September 4, 1875. By E. W. Nelson. Bulletin of the Essex Institute, Vol. IX, pp. 32-65, June, 1877.

"Life-Histories," \* carrying the subject from the Crows (*Corvidæ*) to the Waders, these and the Swimming Birds being reserved for treatment in a third volume. This volume differs little in general character from the first. It abounds in original observations, combined with much that is gleaned from other authors. The nature of the food of the different species has received at Mr. Gentry's hands very careful attention, his pages fairly bristling with the technical names of the various species of insects and plants, the fragments of which he has detected in examining the contents of their stomachs. The freer use of vernacular names, in the case of the more common and well-known species, would doubtless have added interest to his extensive "bills of fare" for the non-scientific reader. The occasional adoption of such familiar terms as red-legged locust or "grasshopper," black cricket, sulphur butterfly, cankerworm, pine weevil, etc., in place of the ever-recurring *Caloptenus femur-rubrum*, *Acheta nigra*, *Colias philodice*, *Anisopteryx vernata* and *A. pometaria*, *Hylobius pales*, etc., or chestnut, oak, alder, birch, woodbine-honeysuckle, and strawberry, to take mild examples, instead of *Custanea*, *Quercus*, *Alnus*, *Betula*, *Lonicera periclymenum*, *Fragaria virginiana*, etc., would certainly have savored less of pedantry, and been far more intelligible to ordinary readers. Mr. Gentry is evidently a friend and admirer of the feathered tribes, and often describes their habits most minutely, especially in relation to their nidification. Despite some faults of execution, the work before us contributes much of value respecting the habits of our birds, and records many interesting points in their history not given by previous writers. — J. A. A.

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## General Notes.

THREE ADDITIONS TO THE AVIFAUNA OF NORTH AMERICA. — Mr. Lucien M. Turner, United States Signal Officer, stationed for the past three years at St. Michael's, Norton Sound, Alaska, collected during his residence at that post a considerable series of birds, among which are the following species not previously recorded from this continent :—

1. **Parus cinctus**, Bodd. (= *sibiricus*, Gmel. et auct.). — A species very closely resembling *P. hudsonicus*, but differing in having the whole side of the neck pure white instead of ashy, conspicuous white edging to remiges and rectrices, and other minor features. Found in company with *P. hudsonicus*, and not rare, though less common than the latter. Several specimens obtained at St. Michael's, March 15, 1875.

2. **Syrnium lapponicum**, Retz. — A specimen obtained at the Yukon delta, April 15, 1876. This form resembles *S. cinereum*, which was also obtained in the same locality, but is very much paler colored.

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\* Life-Histories of the Birds of Eastern Pennsylvania. By Thomas G. Gentry. Vol. II, 8vo, pp. 336. The Naturalist's Agency, Salem, Mass. 1877.

3. *Surnia ulula*, Linn. — St. Michael's, October, 1876, said to be very rare. This bird also differs from its American representative, *S. funerea*, Linn. = (*S. ulula* var. *hudsonia*, B. B. & R., Hist. N. Am. Birds, III, p. 75) in the great predominance of white on the plumage.

Owing to the arduous nature of his duties as Signal Observer, which necessitated his presence at or near the post the whole time, Mr. Turner was not able to pay as much attention to the natural history of the region as could be desired, and had to depend in a great measure upon the natives for the specimens which he secured. The results of his endeavors, however, are, considering the circumstances, very satisfactory. He found *Sterna aleutica*, of which but a single specimen had been collected, very numerous, and obtained a good series of both skins and eggs. *Budytes flava* was also exceedingly abundant, and its nest and eggs secured, besides many skins of both adult and young birds. — ROBERT RIDGWAY, *Washington, D. C.*

THE ROCK PTARMIGAN (*Lagopus rupestris*) IN THE ALEUTIAN ISLANDS. — In the Proceedings of the California Academy of Sciences, February 8, 1873, in a paper entitled "Notes on the Avifauna of the Aleutian Islands, from Unalashka eastward," Mr. W. H. Dall states that *Lagopus albus* is a "resident from the Shumagins to Unalashka," and adds: "I made inquiries in regard to *L. rupestris*, but could get no information, and do not think the species is found in the islands." In a second paper on the Avifauna of the Aleutian Islands west of Unalashka, in the Proceedings of the same society, March 14, 1874, he states that *L. albus* is "more or less abundant in all the Aleutian Islands," and that, "from careful examination of many specimens, most of which were killed for the table, I feel sure that this is the only species of Grouse found on the islands, and I believe there is no authenticated instance of the occurrence of *L. rupestris* west of the 156th meridian."

From my own observations I am led to believe that Mr. Dall has mistaken *L. rupestris* for *L. albus*, since I found the former to be very numerous at Unalashka during portions of May and June, 1877, and I also found them common on the Akoutan Islands east of Unalashka, and by inquiry among the residents of the islands, both native and foreign, I could only learn of the occurrence of this species. I was informed, however, that another species of Ptarmigan is found on the peninsula of Alaska.

Since arriving at St. Michael's, I learn from Mr. Turner, who has been collecting at this place for the last three years, that *L. rupestris* is common in the vicinity of St. Michael's, being as numerous as *L. albus* on the hills of the neighboring mainland. He also informs me that on a single mountain on Stewart Island, about twenty-five miles from the mainland, this species is quite numerous. In all of the above-named places the bird breeds and is resident throughout the year. — E. W. NELSON, *St. Michael's, Alaska.*



COTURNICULUS HENSLOWI IN NEW HAMPSHIRE. — As the northern range of Henslow's Sparrow has not previously been recorded beyond the Massachusetts line, the following notes, which have been kindly placed at my disposal by Mr. Chas. F. Goodhue of Webster, N. H., will be of interest. He writes : " I detected my first specimen on April 17, 1874, in Webster, N. H., and shot another on April 26, 1875, in Boscawen, N. H. On August 16, 1877, I found several pairs in a large meadow in Salisbury, N. H. They were all apparently breeding, and I was so fortunate as to discover a nest containing four young large enough to fly. The nest, which was a bulky structure composed externally of coarse grass and lined with finer of the same, was placed in a bunch of grass where the water was about two inches in depth. These birds were not at all shy, but remained singing on some low bushes until I approached them within a few yards."

I have a specimen which Mr. Goodhue shot on Salisbury meadows, and kindly presented me. — RUTHVEN DEANE, *Cambridge, Mass.*

BREEDING HABITS OF GEOCOCCYX CALIFORNIANUS. — In 1872, while in Southern Arizona, I found some twenty nests of *Geococcyx californianus*, the first nest on April 8, the last on September 10. During the month of April, in which I found several nests, not one contained more than three eggs, although I allowed incubation to begin before taking the eggs, as I expected the birds to lay more. Nearly every nest I found after the middle of May contained four or five eggs, and I account for the greater number laid later in the season by the fact that insect food during the dry season, which includes April and May, is comparatively scarce. The birds being aware of this content themselves with rearing a small brood the first time, and a larger one at the second laying, when the young are hatched about the beginning of the rainy season, which sets in in June. At this time all kinds of insects and reptiles become exceedingly abundant, and the birds have less trouble in providing for a family of five than earlier in the season for one of three. Only occasionally have I found eggs in different stages of incubation, and I do not believe that there was over a week's difference in the time of laying of the eggs in any nests I found.

The food of this species consists chiefly of insects, particularly grasshoppers, but embraces occasionally a lizard or a field mouse. I do not believe they kill and eat rattlesnakes, as has been sometimes reported. — CHARLES BENDIRE, *Camp Harney, Oregon.*

OCCURRENCE OF A SECOND SPECIMEN OF SWAINSON'S BUZZARD (*Buteo swainsoni*) IN MASSACHUSETTS. — The claim of the above-named species to be regarded as a bird of New England has hitherto rested solely upon a specimen in melanistic plumage (formerly specifically separated as *B. insignatus*, Cassin) shot a few years since at Salem, Mass., and now in the museum of the Peabody Academy.

It is with much pleasure that I can now announce the capture of a second individual at Wayland, Mass., on or about September 12,



1876. Through the kindness of Mr. Arthur Smith of Brookline, to whom it was originally sent in the flesh, this bird has recently come into my possession. It is a young male in nearly perfect autumnal dress, and, though not typically melanistic, it still inclines strongly towards that condition. — WILLIAM BREWSTER, *Cambridge, Mass.*

BREEDING OF THE HOODED MERGANSER (*Mergus cucullatus*) IN FLORIDA. — In view of the fact that we have no published record of the breeding of this species in the Southern States, I was much surprised to find that it *does* breed in Florida, at least *occasionally*, and I *think* regularly.

While descending the St. John's River by steamer on March 28, 1877, I saw, near Blue Spring, a female Hooded Merganser, accompanied by a large brood of young, which were perhaps a week old. As the boat rounded a sharp bend of the river the little family, taken by surprise, was nearly run over, but after the first moment of paralyzed inaction, the mother flew heavily and reluctantly off, while the ducklings scattered in all directions, and escaped by diving. As I was standing in the steamer's bows at the time, there was no possibility of mistaking the identity of the species, for when first seen the whole brood was within ten yards of me, so near, in fact, that I could distinctly see the color of the parent's irides.

On the Wekiva River, about a week previously, I saw many Mergansers of this species, and although it did not then occur to me that they might be breeding, I now recall many circumstances that induce me to consider this not improbable. While at Pilatka, Fla., Mr. J. H. Fry showed me a number of specimens in full breeding plumage, stating that in his opinion the birds nested in the vicinity of that place. On the Wekiva the Wood Duck (*Aix sponsa*) was the only other species of *Anatidæ* observed. March 19 and 20, I saw several broods of young a few days old, accompanying their mothers. As the eggs of this duck are rarely or never laid in New England before May, and oftener, I think, especially in the more Northern States, not until June, this latter fact may be not devoid of interest. — WILLIAM BREWSTER, *Cambridge, Mass.*

BREEDING OF THE SHORE LARK IN WESTERN NEW YORK. — The Shore Lark (*Eremophila alpestris*) is common during October, November, the latter part of February, and March, and occasionally a specimen is seen in April, but on May 29, 1876, I observed a bird of this species, with a worm in its bill, fly into a meadow, and on June 11 I found an old bird accompanied by three young ones, in a highway adjoining. The young were just able to fly. A flock, mostly composed of young birds, was seen on some ploughed land, September 1, 1876. I do not know of a previous instance of this bird's nesting in this State. — JOHN M. HOWEY, *Canandaigua, N. Y.*

THE NORTHERN PHALAROPE IN NORTH CAROLINA. — Dr. George H. Moran sends me a specimen of *Lobipes hyperboreus* which was lately shot on the Catawba River, near Morgantown, N. C. The capture is interesting

from the southerly and inland character of the locality. The specimen is in incomplete breeding dress. — ELLIOTT COUES, *Washington, D. C.*

RELAYING OF HAWKS IN THE SAME NEST WHEN ROBBED. — In an old partly decayed chestnut-tree, at a locality in Southeastern Pennsylvania, was found, in the spring of 1872, the nest of a Sparrow-Hawk (*Tinnunculus sparverius*). From this tree, at intervals of about ten days, were taken three sets of five eggs each, making fifteen in all. The first and second sets were taken from the same hole. In the spring of 1873, from the same hole from which sets one and two of the previous year were removed, were taken, April 24, five eggs; on May 6, from the same hole, four more eggs; on May 23, from the same hole, two eggs, and two others were left. On May 29, when the nest was again visited, another egg had been deposited, making, for this season, also, a total of fifteen eggs, deposited by the same pair of Hawks. The last eggs laid vary greatly from those laid earlier. Two of them are much smaller, measuring  $1.41 \times 1.19$  and  $1.31 \times 1.10$ , while the average size of the earlier laid eggs is about  $1.44 \times 1.20$ . The greatest difference, however, is in color, two of the last laid eggs (the smallest) being slightly marked, one being almost white.

In the spring of 1874, from a nest of a Cooper's Hawk (*Accipiter cooperi*) four eggs were taken on April 24; May 5, two more eggs were taken from the same nest; and May 11, two others. Later in the season (about August 1), on visiting the same locality, two young Hawks of this species were seen, but I do not know that they were reared in this old nest. — C. J. PENNOCK.

THE WILLOW GROUSE IN NEW YORK. — Mr. Romeyn B. Hough, Cornell University, Ithaca, N. Y., writes: "Not finding the Willow Grouse (*Lagopus albus*) hitherto credited to the State of New York, I take the liberty of informing you that there is one in my collection which was taken in Watson, Lewis County, on May 22, 1876. It was killed by the person who brought it to me, who said that it was the only one he saw, and that it was not very shy. It was a male, changing plumage, — mostly white, but with brown head and neck. This is the first instance that has come to my certain knowledge, though I have heard of some lumbermen catching in winter what they called a 'White Partridge,' and which was probably a Ptarmigan, though possibly an albino Spruce or Ruffed Grouse." — ELLIOTT COUES, *Washington, D. C.*

PIPILO ERYTHROPHthalmus WITH SPOTTED SCAPULARS. — Mr. P. L. Jouy, of Washington, D. C., submits to my inspection an interesting specimen of the Eastern Towhee, shot May 4, 1875, in the District of Columbia, and requests me to make a note of its peculiarities for publication in the Bulletin. The outer scapulars are distinctly and strongly marked, near the end of the outer webs, with streaks of pure white; there is much concealed white in the black of the throat; and in other respects, as the

extent of white on the primaries and lateral tail-feathers, the specimen resembles *P. "arcticus."* Nothing is wanting, in fact, to make it a typical "*arcticus*" but the spots on the wing-coverts. Another specimen, shot by the same gentleman in the same locality, also shows a trace of white on the scapulars. Examples intermediate between *erythrophthalmus* and "*arcticus*" have long since been noted by Baird, myself, and others, but all such hitherto known, so far as I am aware, have been from localities where the respective *habitats* of the two forms adjoin. The present case offers additional and very strong evidence against the specific distinction claimed for *P. "arcticus."* — ELLIOTT COATES, *Washington, D. C.*

[A considerable proportion of the specimens of *P. erythrophthalmus* taken by me in 1871, in the vicinity of Leavenworth, Kan. (mainly in East Leavenworth, Mo.), showed white spots on the scapulars and more white on the wings than eastern examples, thus exhibiting a decided tendency toward the characters of *P. "arcticus,"* the eastern limit of the range of which, in its typical aspect, is the eastern base of the Rocky Mountains in Colorado, some six hundred miles west of Leavenworth. — J. A. ALLEN.]

VIREO VICINIOR IN CALIFORNIA. — I have found this Vireo to be not uncommon in the vicinity of Campo, San Diego Co., Cal., fifty miles east of San Diego Bay. It ranges through the mountains from the lower limit of the pines down to about an altitude of three thousand feet. It is found in thick low brush, very seldom going into or near trees. I have never met with more than three together, having generally met with them singly. They are shy and active, keep near the ground, and usually search a bush thoroughly before leaving it, although not always going to the top. On leaving the bush they commonly fly several yards before alighting in another. They sing pretty steadily, the song consisting of a couple of syllables repeated with different inflections, something like *chu-wee, chu-we'e chu-we'e*, generally pausing a little after three or four notes. Sometimes the order is reversed. This seems to be the song of the male, as the only female that I am positive of having heard, sung more like *V. pusillus*. Sometimes when alarmed they will scold like a Wren. When near to them, as they are singing, a sort of whistling sound can be heard between the notes. I have never seen them catching insects in the air, as some other Vireos do, but have observed them scratching on the ground like a Pipilo.

The colors are not so bleached as in specimens I have seen in New Mexico, nor do the birds frequent the trees so much as those. I had hoped to get a nest, as it is unknown, but have failed so far. They first appeared about March 24, and as their numbers seen have varied but little since the beginning of April till the present time (middle of June), they probably do not go much farther north, which may account for their not having been found in California before. — F. STEPHENS, *Campo, Cal.*

NEST AND EGGS OF ZONOTRICHIA CORONATA. — The nest and eggs of this species have hitherto escaped the notice of collectors, and are, so far

as I am aware, unknown to the public. I have in my possession a nest which with its eggs — then four in number — was taken by Mr. Ludovic Kumlien in Shasta County, California, the female having been shot from the nest. The eggs measure from .80 to .82 of an inch in length, and from .64 to .67 in breadth. They are of a rounded oval shape, and are but slightly more obtuse at one end than at the other. Their ground-color is a light green, and is generally plainly visible, as the markings of reddish and of golden-brown, with which the whole surface is pretty uniformly flecked in small and well-distributed blotches, are nowhere numerous or confluent. The eggs closely resemble very lightly marked specimens of *Zonotrichia albicollis*, but are slightly smaller and more nearly spheroidal in shape.

The nest has an outer diameter of five inches and a height of three. The cavity is two and a half inches deep, with a diameter, at the rim, of the same. Its outer portions and base are made of thin strips of bark, skeleton leaves, and coarse stalks and stems of plants, reeds, and *Equisetaceæ*. It is very strongly and thoroughly lined with fine wiry rootlets of plants. It was found, June 14, 1877, on the banks of the McCloud. — T. M. BREWER, *Boston, Mass.*

NOTE ON *DENDRÆCA DOMINICA*. — In an article upon *Dendræca dominica*, in the October number of the "Bulletin" I took occasion to express serious doubts as to the correct identification of certain alleged nests of that Warbler collected by Mr. N. C. Giles at Wilmington, N. C., and upon which most of the recent descriptions of the nidification of the species were based. My attention has since been called by Dr. Brewer to his supplementary note in the Appendix of the "History of North American Birds" (Vol. III, p. 505), where further mention is made of Mr. Giles's specimens, and he also informs me by letter that some of the specimens recently sent to the Smithsonian Institution by Mr. Giles have been accompanied by skins of the parent birds, thus setting at rest all doubts which he had previously entertained. I take this opportunity to express my regret at having cast any doubts upon Mr. Giles's identification. — W. BREWSTER.

EASTWARD RANGE OF *CHONDESTES GRAMMACA*. — On the morning of the 27th of August I saw in the grounds of the Smithsonian Institution a pair of the above-named Sparrows, the only ones I ever saw in the District of Columbia or vicinity. They were adults, and when first seen flew up before me, expanding their white-tipped tails as they flew, and alighted in the gravelly roadway about two rods in advance; then ran along the ground, Lark-like, as is the characteristic habit of the species, now and then giving chase to a grasshopper, which they usually captured on the wing. Although originally a western bird, this species seems to be steadily extending its range to the eastward over those portions of the country most denuded of timber. According to Dr. Wheaton (see Coues's "Birds of



the Northwest," p. 234), it made its advent into Ohio about the year 1860, since which time it has gradually increased in numbers, until it is now a common summer resident (see Ohio Agricultural Report for 1874, p. 566). In the semi-prairie districts of Indiana, Illinois, and adjacent States, it has become generally dispersed, being now common in the cleared portions surrounded by heavy forests, and where a few years ago was dense and continuous woodland. It has already been captured in Florida (the National Museum possessing a specimen from that State), and should be carefully looked for in other sections of the Eastern States. — ROBERT RIDGWAY, *Washington, D. C.*

THE LARK-FINCH (*Chondestes grammaca*) AGAIN IN MASSACHUSETTS. — On November 25, 1877, I had the pleasure of seeing in the flesh a female bird of this species, taken the previous day near the residence of Mr. C. J. Maynard, Newtonville, who notified me of the fact, and has since kindly presented me with the skin. The bird was brought to him by a boy very soon after it was shot, who stated it was in company with another of the same kind. Mr. Maynard went immediately in search, but only Tree Sparrows and a flock of Snow Buntings were to be seen. The Lark Finch is a rare bird east of the Ohio River, and there is but one previous record for this State or New England, namely, a specimen found in Gloucester about 1845 (Proc. Ess. Inst., Vol. I, 1856, p. 224). — H. A. PURDIE, *Newton, Mass.*

A THIRD SPECIMEN OF HELMINTHOPHAGA LEUCOBONCHIALIS. — Last winter, while working among the Warblers (*Sylvicolidæ*), in the collection of the Philadelphia Academy of Natural Sciences, I discovered among them a specimen of the White-throated Warbler (*Helminthophaga leucobonchialis*, Brewster), which, according to some writing on the bottom of its stand, had been in the dark for nearly fifteen years. The writing was this: "J. C., 20 October, 1862," and also what I made out to be, "Not from Bell," which was much blurred. The "J. C.," which means John Cassin (for it is his handwriting), shows that he once possessed or had something to do with the specimen, but how it ever escaped his notice and found its way into the collection of the Academy without being discovered I cannot see. The other is, I suppose, the date of its capture; and it is curious that it should have been taken so long before the one which for several years was the only known representative of the species. No label was attached to it designating the locality where it was procured, its sex or species; but by careful comparison with Mr. Brewster's description, as well as with Mr. Wood's specimen, I can safely say that it is a genuine specimen of *H. leucobonchialis*, and still further proves the validity of the species. As the first two were males, and as this specimen closely resembles them, I judge it to be a male also. A paper which I wrote on this specimen was read before the Academy, at a recent meeting, and will be published in their Proceedings.



I may further add that I have searched the Reports and record of donations to the Academy from 1862 to 1875, without finding any reference to this specimen. — SPENCER TROTTER, *Philadelphia, Pa.*

THE BLACK-THROATED BUNTING (*Euspiza americana*) NESTING IN MASSACHUSETTS. — Mr. Frank E. Bean of Medford has called my attention to a nest and four eggs of this bird found by him in the above town on the 9th of June, 1877, at which date the eggs were fresh. The nest, seemingly large for the species, was supported about a foot from the ground by the stem of a bush and the blades of the grass-clump in which it was placed. Both nest and eggs are quite typical. Towards the last of June he found, in another locality, a second nest containing four young. This was in a field bordering the highway; the song of the male bird perched on the fence-rails had by first attracted his attention, and both birds were soon seen feeding the nestlings. Mr. Bean thinks that more than these two pairs may have raised young in his vicinity, as he has heard other birds in this and previous years. But few instances of the nesting of the Black-throated Bunting in Massachusetts are known, and it is to be hoped that this bird of "neat plumage" and "trim form," so common in the Middle and Western States, where it is known as the "Little Field Lark," "Dick-sissel" and "Judas-Bird," will gradually become a permanent resident of our fields and bushy pastures. — H. A. PURDIE, *Newton, Mass.*

THE BLUE-GRAY GNATCATCHER (*Polioptila cærulea*) IN MASSACHUSETTS. — Through the kindness of Mr. Arthur Smith of Brookline I am enabled to add this species to our list of Massachusetts Birds. On the 18th of November, 1877, he noticed a bird flying about in a small orchard at Chatham (Cape Cod), but was unable to identify it, and failed to procure the specimen. A few days later his friend, Mr. Stephen Decatur, shot a female *P. cærulea* in the same locality, which was undoubtedly the same specimen, as Mr. Smith has preserved it and recognizes it as the species seen by himself.

A few specimens have been taken in Rhode Island, though it is but recently that the Gnatcatcher has been recorded as a bird of New England. — RUTHVEN DEANE, *Cambridge, Mass.*

THE CAPTURE OF SEVERAL RARE BIRDS NEAR WEST POINT, NEW YORK. — 1. **CORVUS OSSIFRAGUS**, Wilson. On the 7th of May, 1877, as I was walking up from the river, my attention was attracted to the very singular utterance of a Crow that sat on an oak-tree in front of Mr. Pell's house. Its note was a hollow, guttural croak, quite unlike the cawing of the common species (*Corvus americanus*). I regarded the bird curiously for several moments, but as I had never before heard the note of the Fish Crow, I passed on, attributing this singular vocal demonstration to some uncommonly strong emotion, — perhaps it was a parent bird whose nest I had spoiled, not far from that place, several days previous. Accepting

this conclusion as satisfactory, I should soon have forgotten the circumstance, had not the bird itself acted in such a manner as to dispel the illusion. It flew before me, and alighted upon a tree far over on the other side of the highway, where it croaked most dismally. When I had reached the highway before climbing over the stone-wall, I noticed that the Crow had again taken flight, and as it was flying somewhat in my direction, I knelt behind the wall, hoping thus to obtain a shot. When I ventured to look out, I saw the bird soaring in circles not far away. Soon it approached me, but soaring very high in the air. When it got directly overhead, I fired; it fell to the ground, close beside me, reeling and struggling violently all the distance. When I reached it I was both surprised and delighted to find a fine female example of the Fish Crow. This is, I believe, the most northerly record of the capture of this species in the State, though they have been taken on Long Island, where my friend, Mr. Theodore Roosevelt, informed me he took a single specimen.

2. *Helminthophaga celata*, (Say) Baird. On May 13, 1875, I shot a beautiful male of this rare species, as it was skipping among the apple-blossoms, close to my house, in company with a little band of Warblers which may have belonged to the same species.

3. *Dendroica cærulea*, (Wilson) Baird. I secured a fine male of this beautiful species, near my residence, May 17, 1875.

4. *Vireo philadelphicus*, Cassin. I have a single male specimen of this scarce species in my collection, taken near here. It was shot by my friend, Mr. William K. Lente, at Cold Spring, as it hopped about in a tree-top, September 24, 1875. This example exhibits the intensity of yellow color on the under parts which characterizes the *autumnal plumage*.

5. *Stelgidopteryx serripennis*, (Audubon) Baird. I have found this Swallow on but one occasion, in May, 1872, when a single pair nested in this neighborhood, in a bank close to a stable, beside a pond. I watched this pair while they constructed their nest, during which time they were often seen to alight close together, on a board-fence from which they descended after the rough materials of which the nest was composed, — hay and feathers. Late in May I captured the female sitting upon four fresh eggs. I had no difficulty in doing this, for the hole was quite large, and not very deep, so that, by baring my arm, I could easily introduce it to the back of the hole. These eggs are pure white, and one of them measures .80×.53 of an inch.

6. *Ampelis garrulus*, Gmel. Dr. Frederic Lente, of Cold Spring, showed me a beautiful Waxwing of this species which was shot near his residence, several winters before.

His son, Wm. K. Lente, informed me that he shot at several Bohemian Waxwings that sat in an evergreen tree close to their house. This occurred several years after the first specimen was taken. — EDGAR A. MEARNs, *Highland Falls, New York*.

THE FISH CROW (*Corvus ossifragus*, Wils.), ON LONG ISLAND. — On the 17th July, 1873, I shot a fine female of this species near Rockaway, L. I. The bird was flying around, but kept apart from a flock of common Crows in the vicinity. The bird is not mentioned in Giraud's "Birds of Long Island," although Samuels, in "Birds of New England," says, "I understand that it has been taken on Long Island." — C. H. EAGLE.

[These two recent captures of the Fish Crow by Messrs. Eagle and Roosevelt (see above p. 46) confirm the statement made long since by De Kay, that "they are occasionally seen on the shores of Long Island, but are generally confounded with the Common Crow" (New York Zool., Pt. II, 1844, p. 135), which seems to have hitherto been the basis of all references to its occurrence in that locality, and, in connection with Linsley's record of its occurrence at Stratford, Conn. (Am. Journ. Sci. and Arts, Vol. XLIV, 1843, p. 260), of its *presumed* occurrence in Southern New England. Although recently observed by Mr. Brewster in Cambridge, Mass. (see this Bulletin, Vol. I, p. 19), there appears to be as yet no unquestioned record of its capture in New England, where it doubtless occasionally occurs. — J. A. ALLEN.]

CORRECTION. — On page 137 of my late "Review of the Birds of Connecticut," mention is made of the capture of half a dozen specimens of *Podiceps cristatus* in Connecticut. My attention having been called, through the kindness of Dr. Brewer, to the improbability of its occurrence at all within our limits, I immediately made inquiry of my friend, John H. Sage, Esq., of Portland, Conn., concerning the identity of the specimens in question. He writes me that a thorough re-examination of the birds proves them all to be more or less immature examples of *P. griseigena*, var. *holbolli*. — C. HART MERRIAM.

MELANISM OF TURDUS MIGRATORIUS. — Another\* case of this affection, much less frequent (except in *Falconidæ*) than leucism, comes to my knowledge through the attention of Mr. G. A. Boardman, who desires me to make a note of it for the "Bulletin." The young Robin, "as black as a Grackle," is still living in Mr. Boardman's possession. About two months ago this ornithologist heard of a nest of black Robins being taken at St. John's, and wrote to the owner or collector about it. The person, however, lost his life in the great fire which occurred there, and Mr. Boardman, not liking to trouble the family by writing under such circumstances, went to St. John's and inquired about the black Robins. The story proved true, and one of the birds was purchased. "When I first got the bird," writes Mr. Boardman, "he was in pretty good plumage, but his feathers are now half out, and I am hoping that he will not disappoint me by coming out red. Most of the feathers on his head and neck are new, I think, and jet black. His tail is now gone, but that was pure black too.

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\* See this Bulletin, Vol. I, No. 1, April, 1876, p. 24.

I see no signs of the normal plumage." Mr. Boardman writes me later, under date of September 23, that he has been much interested in watching the moult of the black Robin, and says, "He acts as if he were going to be an albino. His new tail is about half grown out, and is nearly white, with a black stripe down each feather. His breast, head, neck, and back are jet black, but very much out of feather. He would now make a funny specimen, — part albinic, part melanistic." The parents of these young were not peculiar in color. — ELLIOTT COUES, *Washington, D. C.*

[NOTE (December 15, 1877). Since this paragraph was penned, the bird has been killed, stuffed, and sent to the Smithsonian, where I have seen it. It is black, with white wings and tail. — E. C.]

THE SEASIDE FINCH (*Ammodramus maritimus*) IN EASTERN MASSACHUSETTS. — As the existence of this species in Massachusetts has been challenged, and none are known to have occurred for a number of years, it would seem not amiss to mention that a single specimen of this species was shot by Mr. George O. Welch at Nahant in August last. It was in company with a number of *A. caudacutus*, but was the only one of its kind. It was in the not common plumage described by Audubon as a distinct species under the name of *Ammodramus macgillivrayi*, was sent to Professor Baird, who found it closely corresponding to Audubon's type, which he possesses. It was a young male, and appeared to have come from the north. In "History of North American Birds" (Vol. I, p. 560) it is given as not occurring north of Long Island Sound.

In this connection it may not be uninteresting to add that Mr. Welch found *Ammodramus caudacutus* quite abundant on the shores of St. Andrew's Bay, the estuary of St. Croix River, and lying between the eastern boundary of Maine and New Brunswick. This, if I am not mistaken, is the first time that it has been taken in Maine so far to the east, and not at all, except that Mr. N. C. Brown (this Bulletin, Vol. II, p. 27) obtained a single specimen in Scarborough. Mr. Brewster (*ibid.*, p. 28), on the authority of Mr. William Stone, mentions it as abundant at Tignish, Prince Edward Island. — T. M. BREWER, *Boston, Mass.*

THE LARK-BUNTING (*Calamospiza bicolor*) IN MASSACHUSETTS. — The first instance known to me of the capture of this species east of the Mississippi River occurred on December 5, 1877, when a specimen was shot by Mr. N. A. Vickary at Lynn, Mass., — a male in autumnal plumage. Its usual eastern limit is well known to be the plains of middle Kansas, where it ranges eastward to about, or possibly a little beyond, Fort Harker. The specimen has been kindly shown me by Mr. Vickary, to whom I am indebted for a knowledge of its capture. — J. A. ALLEN, *Cambridge, Mass.*

# BULLETIN

OF THE

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### CHANGES IN OUR NORTH AMERICAN FAUNA.

BY T. M. BREWER.

I PROPOSE four changes in our list of North American Birds as now accepted: three additions and one subtraction; the addition of *Totanus ochropus*, *Ægialitis hiaticula*, and *Larus canus*, and the rejection from the list of *Podiceps cristatus*.

**Totanus ochropus**, Linn. GREEN SANDPIPER. This species, the *Tringa ochropus* of Linnæus, Gmelin, etc., the *Totanus ochropus* of Temminck, the *Helodromas* of Kaup, the White-tailed Tatler of Nuttall, and the Green Sandpiper of Dresser, and other more recent authors, is entitled to a restoration to its place in the list of North American birds, on the indisputable authority of T. Edmund Harting, Esq., of London. This gentleman, in March, 1873, informed Professor Baird, by letter, that he had then recently received from Mr. H. Whitely, a perfectly trustworthy dealer of Woolwich, a small parcel of North American skins that had just been sent to him from Halifax, Nova Scotia. Among these was an example of this species. Upon inquiry Mr. Harting was assured by Mr. Whitely that the skin actually came to him from Halifax, and that it had been there prepared from a bird in the flesh. Mr. Harting regarded it as "the first *authentic* instance of the occurrence of the *Totanus ochropus* in North America." Nevertheless this species had previously been included by Mr. Nuttall (Water Birds, p. 157) as one of the birds of North America, based upon an unverified claim that two specimens had been taken at Hudson's Bay, a statement also accepted by Richardson in the "Fauna Boreali-Americana"



(II, p. 392). These claims not being accepted as authentic, the supposed examples being attributed to our *Rhyacophilus solitarius*, the Green Tatler was not included by Mr. Cassin in the ninth volume of the Pacific Railroad Reports. The very close resemblance of these two species, *T. ochropus* and *T. solitarius*, both in regard to their physical structure and their general habits, — a resemblance so close that, although Kaup refers the two species to different genera, a suspicion of their being only varieties of one species has suggested itself to at least one of my “variety” loving friends, — seems to warrant us in looking for nearly identical habits in their mode of nesting. The recently ascertained fact that the *T. ochropus* nests in trees, making use of the deserted nests of Hawks, Crows, Jays, and other birds, makes it apparently worth the while of our own collectors to ascertain if our *solitarius* has not the same habits, and perhaps explains why it is that we have so long suffered the egg of this species to remain undiscovered. I have never yet seen a single well-authenticated example of its egg. All purporting to be eggs of this species were referable either to *Ægialitis vocifera* or to *Tringoides macularius*, generally the latter. It may be, therefore, that we have not looked for the eggs of the solitary Tatler in the right place, and that “Excelsior” should be the motto of those who would succeed in their researches for authentic specimens. So far the eggs credited to the *T. solitarius* bear a very suspicious resemblance to one of the two species mentioned. Naturally an egg of the solitary Tatler should more resemble in size, shape, and markings an egg of *T. ochropus*, which is oblong in shape, 1.50 in length, and somewhat similar to eggs of *Gambetta flavipes*. The egg of the *Tringoides macularius*, which in many cabinets does duty for that of *T. solitarius*, is of a rounded oval, and only about 1.10 inches long.

**Larus canus**, Linn. EUROPEAN SEA-MEW. This species is included by Nuttall as a North American bird (Water Birds, p. 299). It is so given also by Bonaparte (Syn. 1828, No. 296), and by Richardson (Faun. Bor. Am. II, p. 420), but the last two are regarded by Mr. Lawrence as synonymes for *Larus delawarensis*, Ord. There appears to be, at least up to the present time, no authentic record of the European *Larus canus* in North America, unless we accept *Larus brachyrhynchus* as a variety of the European bird, and not as having specific distinctness.

In June, 1876, my attention was called by Howard Saunders

Esq., of London, to a specimen which he had fully identified as the true European *Larus canus*. Its label indicated that it had been taken on the coast of Labrador in 1860 by Dr. Elliott Coues, — given by that gentleman to the Smithsonian collection, — and that it had been labelled by him some seventeen years ago as *Larus delawarensis*. It passed into the possession of Mr. John Krider of Philadelphia, by him was sold with other skins to a dealer in London, where, fortunately for the preservation of the record, it was found, identified, and secured by Mr. Saunders, who had at once recognized it as indisputably the European Sea-Mew. As Mr. Saunders has announced his intention of restoring the specimen where, in his judgment, it properly belongs, to the Smithsonian collection, if any doubt is felt as to its identity, there will be full opportunity for testing it. It is regarded by Mr. Saunders as the only authentic instance, on record, of the procuring the true *L. canus* in North America.

**Ægialitis hiaticula.** RINGED PLOVER. The capture of one of this species, a female, by H. W. Feilden, of the British Arctic Expedition of 1875–76, under circumstances that leave no doubt it was nesting in the neighborhood, places it once more, and this time beyond dispute, among the birds of North America.\* The individual in question was taken August 4, 1875, on the beach bordering the valley of the Twin glacier, in Buchanan Strait, latitude 78° 48' N. Its more or less common presence in Greenland has been known for some time, as also its being migratory, in high northern latitudes, and there breeding; occurring there, according to Hewitson, from March to October, and, according to Linnæus, reaching even the Lapland Alps. Scoresby, in his Journal, mentions having met with this species on the eastern coast of Greenland, and more recently other arctic explorers have observed them on the western coast of the same island, at Prince Regent's Inlet and at Hecla Cove. Professor Newton is authority for its breeding generally throughout Greenland, and for its being also found on Sabine and Clavering Islands. It is stated to be abundant on the shores of Possession Bay as well as Regent's Inlet. It was taken by Professor Torell on the Seven Islands, in latitude 80° 45' N., which was, before the recent British expedition, the highest known range of any shore bird. Since then *Streptopelia*

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\* Wilson includes "*Charadrius hiaticula*" among American birds, but his example was, without question, the *semipalmatus* in its spring plumage.

*interpres* has been observed as late as September 5 in latitude 82° 30' N., *Calidris arenaria*, with nest and eggs, in latitude 82° 33' N., *Phalaropus fulicarius* in latitude 82° 27', and *Tringa canutus* in latitude 82° 33' N.

**Podiceps cristatus**, Latham. CRESTED GREBE. This has been counted as a North American bird by Bonaparte (Syn. p. 417), by Richardson (Faun. Bor. Am. II, p. 410), by Nuttall (Water Birds, p. 250), by Audubon (Orn. Biog. III, 595, pl. 292), and others. It is retained by Mr. Lawrence in the ninth volume of Pacific Railroad Reports, and is even given by Dr. Coues in his "Birds of the Northwest," without any expression of doubt as to its existence in North America; indeed, he ventures the remark that he sees no difference between American and European specimens. Nevertheless it is now universally conceded that not a specimen is in existence of American origin, and that there is no authentic record of the capture of a single specimen in America. Every specimen that has been referred to this species, where in existence, proved to be either immature examples of *P. griseigena*, or to be foreign examples, and by no one is this now more cheerfully conceded than by Dr. Coues himself.

It is very obvious now, in reading Mr. Audubon's notes by the light of our present knowledge of the habits of the American form of the Red-necked Grebe, that all he wrote in reference to the supposed American *P. cristatus* relates exclusively to the former species, of which he makes but a brief mention, and with which he appeared to regard himself as unfamiliar, although it is so common about Eastport and the provinces where he spent the spring of 1833.

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## REMARKS ON SOME OF THE BIRDS OF LEWIS COUNTY, NORTHERN NEW YORK.

BY C. HART MERRIAM.

WITH REMARKS BY A. J. DAYAN.

THE county of Lewis, though small, is interesting ornithologically, from the fact that the Canadian and Alleghanian faunæ meet within its boundaries, and that the densely wooded portion lying east of the Black River Valley constitutes the western border of

that extensive district well known to sportsmen as "John Brown's Tract," which is embraced in the "Great Adirondack Wilderness," of the northeastern portion of the State. This eastern district is characterized by a sandy soil, which supports an immense forest, chiefly of coniferous trees. In the northwestern part of the county is another large tract, called "Tug Hill," lying between Lake Ontario and the Adirondack Wilderness, which is characterized by the same class of forest-trees and the same general physical features. The eastern, or Adirondack, region is truly Canadian in its fauna; the western partially so; while the valley of the Black River and the middle portion of the county lying west of it is strictly Alleghanian.

In the eastern (Adirondack) district are found breeding *Turdus pallasi*, *T. swainsoni*, *Sitta canadensis*, *Anorthura troglodytes* var. *hyemalis*, *Dendroica caerulescens*, *D. coronata*, *D. blackburniae*, *D. maculosa*, *Geothlypis philadelphia*, *Myiodioides canadensis*, *Loxia leucoptera*, *L. curvirostra* var. *americana*, *Zonotrichia albicollis*, *Junco hyemalis*, *Corvus corax*, *Perisoreus canadensis*, *Contopus borealis*, *Hylotomus pileatus*, *Picoides arcticus*, *P. americanus*, *Sphyrapicus varius*, *Tetrao canadensis*, *Ardea herodias*, *Colymbus torquatus*, and many other less characteristic species.

At my request, Mr. A. Jennings Dayan, one of our most careful, enthusiastic, and conscientious collectors, sends me the following notes concerning a few species found in the middle (Alleghanian) district of the county. When not otherwise stated, his observations pertain to the town of Lyon's Falls, in the Black River Valley.

**"Eremophila alpestris.** HORNE LARK.—A tolerably common spring migrant; a few breed. Dr. C. P. Kirley of Lowville [middle district] has kindly given me this note on its breeding: 'I first observed *Eremophila alpestris* July 16, 1876, when I shot one two-thirds grown, and saw the parents. In the same locality, June 24, 1876, I noticed a pair of old birds, and on searching for their nest, I found it not more than eighteen inches from the main road. It contained three unfledged young. Since then I have both seen and taken it during the breeding season.'

**"Helminthophaga peregrina.** TENNESSEE WARBLER.—I have taken two of this species (May 19 and 23, 1877), the only record of its occurrence in this locality.

**"Collurio ludovicianus** [var. *excubitoroides*, see below]. LOGGERHEAD SHRIKE.—I shot a fine adult male September 24, 1877. Through the kindness of Mr. A. M. Church, I have examined a nest and five eggs of this bird, taken here May 11, 1877. He secured the female as she left the nest.

"**Surnia ulula** var. **hudsonica**. HAWK OWL. — Dr. Kirley has two specimens, male and female, taken near Lowville, October 24 and November 16, 1877.

"**Lobipes hyperboreus**. NORTHERN PHALAROPE. — I shot a young male on Black River, September 6, 1877. One other was taken about the same date, near Boonville.

"**Oedemia americana**. AMERICAN BLACK SCOTER. — Saw a flock of four on Black River, September 27, 1877, and secured them all. The gizzards of all these birds were absolutely empty, with the exception of a fragment of a shell in one."

Much of interest attaches itself to the breeding of two of these species (*Eremophila alpestris* and *Collurio ludovicianus* var. *excubitoroides*) in this the northeastern portion of the State. Regarding the first of these, Dr. Coues, in his inexhaustible "Birds of the Northwest" (p. 39), says: "East of the region above specified [from Iowa and Minnesota westward] the Horned Lark is not known to breed in the United States; and the only record of its occurrence in summer which I have seen, that given by Mr. Maynard, as above [Massachusetts in July], most probably indicates a highly exceptional instance." Since the publication of the above (1874) it has been ascertained that the bird in question breeds, sparingly, in the western and central portions of the State. In the last number of this Bulletin (p. 40) Mr. John M. Howey calls attention to the fact of its breeding in the vicinity of Canandaigua, in Western New York, but states that he does not "know of a previous instance of this bird's nesting in this State," thus overlooking Mr. Rathbun's record in his "Complete List of the Birds of Cayuga, Seneca, and Wayne Counties," which appeared in the "Auburn Daily Advertiser" of August 14, 1877. Mr. Rathbun states that it is "resident and tolerably common in winter," and that "a few breed," in Central New York. Mr. Dayan's note (on the authority of Dr. C. P. Kirley) is particularly interesting, as it extends the known breeding range of the species, *within* the United States, eastward to the western border of the Adirondack Wilderness, beyond which it must pass to the northward (through St. Lawrence County) into Canada, and thence to Labrador. Whether it has for many years bred within the limits of the State of New York, or has recently extended its breeding range, as seems to be the case with the Lark Finch (*Chondestes grammacus*) and some other species, remains to be decided; I incline to the latter view. It breeds about Hamilton, Can-



ada West (McIlwraith), and abundantly along the Labrador Coast (Audubon and Cones).

Concerning the "Loggerhead Shrike," the case, though in some respects parallel with the above, is much more difficult of explanation, and has given rise to much confusion, owing to the complication arising from the close relationship existing between the Southern and Western forms. Cones, in his "Key," states that "extreme examples of *ludovicianus* and *excubitoroides* look very different, but they are observed to melt into each other when many specimens are compared, so that no specific character can be assigned," and if the doctor had substituted the term *varietal* for *specific*, he would have hit equally near the truth. The fact is, there is so little difference between Eastern examples of *excubitoroides* and the Southern bird that they have often been confounded, and it is practically almost impossible to distinguish them. My own opinion is that the locality whence the specimen came furnishes the most valuable clew to its identity. In a specimen (♂, juv.) taken by Mr. Dayan at Lyon's Falls, Lewis County, New York, September 4, 1877, the light ash of the upper parts contrasts strongly with the "dark plumbeous-ash" of typical Southern examples of *ludovicianus* in the cabinet of Mr. George N. Lawrence, to whose kindness I am indebted for the comparison, and for many other favors. In other respects the bird more closely approaches the Southern form. The Western bird breeds abundantly in Ohio (Wheaton), and was first observed in Canada West (near Hamilton) by McIlwraith about the year 1860, since which date it has bred regularly in that locality. Allen, in 1869, published in the "American Naturalist" (p. 579) the first record of its breeding in New York State ("near Buffalo"), and Rathbun (in the list above referred to) gives it as breeding at Auburn, in the central portion of the State. Fred. J. Davis, Esq., informs me that he has taken several of its nests in the vicinity of Utica, and the fact of its breeding in Lewis County (Dayan, above) completes its eastern range to the Adirondacks. Beyond this barrier it is not, to my knowledge, found, excepting as a rare straggler; and most of the New England specimens have commonly been regarded as accidental visitors from the South. Mr. Purdie, however, in this Bulletin (Vol. II, No. 1, p. 21, 1877), records the capture of a "typical" specimen of var. *excubitoroides* at Cranston, R. I., September 2, 1873, by Fred. T. Jencks. This is, so far as I am aware, the only recognized in-

stance of the capture of the Western form in New England. As a pretty conclusive proof that our New York bird has been derived from the Western (*excubitoroides*) "type," we have the fact of the continuity of its range eastward from the Mississippi to the Adirondacks (through Ohio to Buffalo, Auburn, Utica, and Lewis County, New York); while, on the other hand, its entire absence from those portions of the State where the Carolinian Fauna is most marked (notably along the Hudson River, where such characteristic birds as *Icteria virens*, *Myiodioides mitratus*, *Helmitherus vermivorus*, and *Siurus motacilla* breed in abundance) is sufficient evidence that it is not the Southern bird. That it does not occur in the region above specified is pretty clearly shown by the fact that neither Edgar A. Mearns (of Highland Falls, near West Point) nor Eugene P. Bicknell (of Riverdale), two of our most enterprising young collectors, have ever met with even a single straggler of the genus, other than *C. borealis*, although they have both made the birds of the Hudson River Valley a special study.

(*To be continued.*)

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## DESCRIPTIONS OF THE FIRST PLUMAGE IN VARIOUS SPECIES OF NORTH AMERICAN BIRDS.

BY WILLIAM BREWSTER.

### II.\*

#### 24. *Helminthophaga chrysoptera*.

*Fall plumage*: male. Upper parts bluish-gray, washed strongly with olive-green on the back. Forehead and crown yellow, somewhat obscured by greenish streaking. Occiput bright greenish-yellow. Patch on wings clear yellow. Band through the eye and entire under parts, as in the adult. Chin, throat, and jugulum black, each feather broadly edged with soiled white. White maxillary stripes fairly meeting on anterior portion of chin. (This last feature may probably be explained by individual variation, not by age. I have seen many adults similarly characterized.)

*Fall plumage*: female. Remiges, rectrices, etc., as in adult. Pileum and nape uniform olive-green; back and rump bluish-gray, washed with

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\* For Part I, see this volume, pp. 15 - 23.

greenish-olive. Upper tail-coverts clear bluish-gray. Sides of head and entire under parts with a slight wash of brownish-yellow; otherwise colored like the adult. From two specimens in my collection shot at Cambridge, Mass., July 18, 1874. It may be well to mention that these birds are in somewhat transitional dress, and have hardly, perhaps, passed from the first plumage, but as the female differs but little from a specimen of the same sex in the perfected fall dress, taken August 21, 1875, I have thought it best to describe them both as in full autumnal plumage.

#### **25. *Helminthophaga ruficapilla.***

*First plumage:* female. Remiges, rectrices, etc., as in adult. Two conspicuous wing-bands of bright buff. Pileum and nape light ashy, tinged with fulvous. Back ashy, just touched with green; rump bright olive-green. Supra-orbital line, ring around eye, and the throat, bright buff. Lores, maxillary line, and auriculars pale ashy. Breast and crissum gamboge-yellow, each feather tipped with whitish, producing a somewhat hoary appearance. Abdomen pale yellow; sides dull cinnamon, with a shade of ashy. From a specimen in my collection taken at Upton, Me., August 14, 1873. A full series of specimens illustrates well the progressive stages. The fall plumage is very quickly acquired by young of this species.

#### **26. *Dendrœca virens.***

*First plumage:* male. Remiges and rectrices as in adult; greater and median wing-coverts just tipped with soiled white, forming two very narrow, indistinct wing-bands. Rest of upper parts dark slaty-brown, each feather of the back edged with bright greenish. Superciliary stripes (just meeting in a narrow line on the forehead), eyelids, maxillary line, and chin, bright yellow. Sides of head dark slate; under parts soiled white, each feather on the breast and sides with a terminal spot of black; on the throat and jugulum, these spots become large blotches of dark slate, the feathers being just tipped and edged with light yellow. From a specimen in my collection shot at Cambridge, Mass., July 30, 1875. Like most of the previously described young Warblers, this bird has a narrow central line of yellow feathers extending down the throat and jugulum to the breast.

#### **27. *Dendrœca cœrulescens.***

*First plumage:* male. Remiges and rectrices as in autumnal males, the former slightly paler in color. Rest of upper parts, including the wing-coverts, dark olive-brown; sides of head very dark brown; lores black; throat, jugulum, lower eyelids, and a very conspicuous supra-orbital line, pale buff; breast and sides ashy, tinged with olive. Abdomen, anal region, and crissum strong sulphur-yellow. White spot on base of primaries fully developed.

*First plumage:* female. Remiges and rectrices as in autumnal female.

Rest of upper parts, including wing-coverts and sides of head, light olive-brown. Lores dull black. Superciliary line, both eyelids, throat, jugulum abdominal and anal regions, with crissum, light buff. Breast and sides olive, tinged with buff. Spot on base of primaries dirty-white. From two specimens, male and female, in my collection, shot with parents at Upton, Me., August 11, 1873. The male above described shows a few black feathers on one side of the throat. Several adult females in my collection, taken both in spring and fall, lack the white wing-patch altogether. Others have it but faintly indicated.

### 28. *Dendrœca coronata*.

*First plumage*: female. Upper parts, in general, dull grayish-white, tinged with brownish, heavily streaked with slaty-black, the streaks broadest on the back and narrowest on the pileum; rump soiled white, with well-defined streakings like the back. Lower parts pale lemon, tinged with brownish on the throat, narrowly but distinctly streaked with dull black over the entire surface. From a specimen in my collection, shot at Upton, Me., August 7, 1874. The first plumage of no other bird that I am acquainted with exhibits such a remarkable variation from the more mature stages. The specimen just described resembles closely, in general markings and coloration, the Pine Finch (*Chrysomitris pinus*). As is well illustrated by a full suite of specimens in transitional stages, the yellow of the rump is acquired early in the first moult, which is very nearly completed, in most cases, before that of the crown appears.

### 29. *Dendrœca blackburniæ*.

*First plumage*: male and female. Remiges, rectrices, etc., as in autumnal adult; rest of upper parts uniform dark brown, each feather on the back edged with light buff; the white scapular stripe poorly defined. Head markings precisely similar *in pattern* to the adults', but with the orange everywhere replaced by white, slightly tinged with buff on posterior half of superciliary line. Throat and entire under parts, in the male, clear white, tinged with pale yellow, each feather (excepting on throat) spotted terminally with black. From two specimens in my collection taken at Upton, Me., August 5 and 6, 1874. One of these, the male, has a few orange feathers on the throat, indicating the coming fall plumage.

"Young in autumn. Above similar to the adult female in fall plumage, but more olivaceous; all the markings less distinct. Superciliary stripe and entire lower parts, except the crissum, pale yellowish-buff, hardly brighter on the jugulum. Sides very faintly streaked with grayish. In my collection (No. 1003), Mt. Carmel, Ill., August 15, 1870." — R. R.

### 30. *Dendrœca castanea*.

*First plumage*: female. Remiges, rectrices, primary coverts, and alulæ as in adult. Pileum, nape, and rump dull brown; back dull olive-green;

upper tail-coverts slaty-black. Entire under parts creamy-white, with the slightest possible tinge of clay-color, varying to ashy on the breast. No trace of chestnut on the flanks. Sides of head buff, strongly tinged with greenish on the auriculars and maxillary line. Each feather of the body, both above and beneath, with a large terminal spot of black; the posterior half of abdomen, anal region, and crissum are, however, immaculate. In my collection, from Upton, Me., August 9, 1873.

A very complete suite of specimens, taken late in August and early in September, illustrates well the development of the plumage of the young of this species. The spotted feathers of the under parts, with the exception of a narrow line down the centre of the breast, are the first to disappear, and simultaneously with their removal, the chestnut flank-patches become apparent. Next the pileum and nape take on the autumnal green, and last of all the feathers of the back and central line beneath are changed. Adults of this species in fall dress are indistinguishable from the young, except by the more pronounced chestnut on the sides.

### 31. *Dendrocæa pennsylvanica*.

*First plumage*: male. Remiges, rectrices, etc., as in spring specimens. Wing-bands white, scarcely edged with yellow, and the general aspect of wing much duller than in fall specimens. Rest of upper parts, sides of head, jugulum, breast and sides, pale cinnamon, brightest on pileum, lighter on throat and sides of head. Feathers of back with central spots of dull black. Abdomen, anal region, and crissum creamy-white. From a specimen in my collection shot at Cambridge, Mass., July 18, 1874. It is not a little remarkable that the wing-markings of this bird are much more nearly like those of adults in spring than of the young in autumn.

### 32. *Dendrocæa maculosa*.

*First plumage*: female. Remiges and rectrices slightly paler than in adult; greater and middle wing-coverts just tipped with fulvous, forming two narrow wing-bands; rest of upper parts, sides of head, including orbital region and eyelids, and breast, dark ashy, somewhat lighter on rump. Abdomen, anal region, and crissum pale sulphur-yellow, blotched somewhat indistinctly anteriorly with ashy. Throat pale ashy, with a few yellow feathers intermixed. From a specimen in my collection shot at Upton Me., August 10, 1874. This bird was very young, indeed barely able to fly. Several specimens a little further advanced show an increased amount of yellow on the throat and abdomen, but are otherwise similar.

### 33. *Dendrocæa discolor*.

*First plumage*: male. Remiges, rectrices, etc., as in adult. Wing-bands very rich buff; rest of upper parts, with sides of head, light cinnamon, becoming almost ashy on the forehead and rump, and tinged slightly with yellowish-green on the back. Eyelids dirty white. Entire under parts pale lemon-yellow, somewhat duller, and with a shade of ashy on



the breast and sides. From a specimen in my collection shot at Cambridge, Mass., July 11, 1873. This bird has also two patches of bright yellow on the breast.

### 34. *Perissoglossa tigrina*.

*First plumage:* female. Remiges, rectrices, and primary coverts as in adult. Pileum, nape, rump, and upper tail-coverts dark slaty-brown, the back with an indistinct patch of olive-green. Eyelids, throat, jugulum, and sides of breast dark slate; abdomen, anal region, and crissum solid white, tinged with dull yellow. From a specimen in my collection shot at Upton, Me., August 21, 1874. This bird exhibits a few irregular patches and isolated feathers of dull yellow on the breast and throat, fore-runners of the fall plumage.

### 35. *Siurus auricapillus*.

*"First plumage.* Remiges, rectrices, etc., as in the adult. Rest of upper parts dull fulvous-brown; *the crown without stripes*, all the feathers very indistinctly darker centrally; lower parts paler, more buffy, fulvous, growing gradually white toward the crissum, the buffy portions (breast and sides), with very fine indistinct streaks of dusky. From a specimen in my collection obtained near Washington." — R. R.

### 36. *Oporornis formosa*.

*"First plumage.* Remiges, rectrices, primary coverts, and alulæ as in the adult. Pileum and back dull raw-umber-brown, tinged with rusty on the back and scapulars; throat, jugulum, breast, and sides pale grayish-fulvous, the abdomen and crissum paler, and slightly tinged with yellow. *No markings of any sort about the head.* My collection, Mt. Carmel, Ill., July 27, 1875." — R. R.

### 37. *Icteria virens*.

*"First plumage.* Remiges, rectrices, etc., as in the adult. Head, superiorly and laterally, uniform grayish-olive, with a barely appreciable whitish supraloral line and orbital ring, and *without black markings*. Whole throat pale ash-gray (almost white on the chin), stained laterally and anteriorly with yellow; entire breast gamboge-yellow, obscured with olivaceous-gray across the jugulum (probably entirely gray at first, the yellow feathers being probably the beginning of the first moult). Abdomen white; flanks and crissum pale buff. In my collection from Mt. Carmel, Ill., July 19, 1875." — R. R.

### 38. *Myiodioides canadensis*.

*First plumage:* female. Remiges, rectrices, etc., similar to the adults. Rest of the upper parts, including wing-coverts and sides of head, uniform deep dull cinnamon; the greater coverts tipped with fulvous. Throat, breast, and sides very light cinnamon, tinged with olive. Anal and abdominal regions pale sulphur-yellow. No conspicuous spots, stripes, or

markings anywhere. From a specimen in my collection shot at Upton, Me., August 4, 1874. This bird was so young as to be scarcely able to fly, and, with the rest of the brood, was attended by the female parent.

*Adult in autumn*: male. Similar to adult in spring, but with the yellow of the under parts much more intense, and the black spotting on the breast slightly clouded by the yellow tipping of the overlapping feathers. From a specimen in my collection shot at Upton, Me., August 29, 1874.

*Young in autumn*: male. Pileum and back greenish-olive; nape and rump bluish-ash, slightly tinged with olive. Centres of a few feathers on the forehead and cheeks, with a continuous line along the side of the neck to the breast, dusky-black. A broad band of very small spots (each one not more than one quarter of the size of those exhibited in the adult plumage) across the upper part of the breast black. Otherwise similar to the adult. In "History of Birds of North America," Vol. I. p. 320, Mr. Ridgway says, "In the young [these spots] are obsolete."

### 39. *Geothlypis philadelphia*.

*First plumage*: female. Remiges, rectrices, etc., as in adult. Rest of upper parts, with wing-coverts and sides of head, dull reddish-brown, becoming almost cinnamon on the back, and tinged strongly with ashy on the pileum. Entire under parts light reddish-brown, most pronounced on the abdominal and anal regions, becoming lighter on the throat, and darker, with a strong olive suffusion, on the breast and sides. No appreciable maxillary or supra-orbital stripes. From a specimen in my collection shot at Upton, Me., August 11, 1876. This bird was very young; in fact, barely able to fly. A slight doubt exists in my mind as to its identity, for I did not actually see the parent birds feed it, though both were in the immediate vicinity and exhibited much solicitude. This specimen is separable from the corresponding stage of *G. trichas* by the ashy cast of the pileum and the absence of brownish on the sides.

*Autumnal plumage*: young male. Entire upper parts olive-green, the feathers of the pileum and nape being just tipped with this color and showing plainly the ashy underneath when disarranged. Sides of head, with broad bands extending down each side of the throat and nearly meeting across the jugulum, ash, washed with greenish-olive. Sides, with a broad connected band across anal region and breast, dull olive-green. Rest of under parts, with central areas of throat and jugulum, very clear rich yellow, intensifying into a spot of orange on the breast. In two specimens (both males) a yellow tipping of the feathers on the jugulum nearly conceals much black underneath, which becomes conspicuous when the plumage is slightly disarranged.

*Autumnal plumage*: young female. Similar to the male, but with a more olive cast to the green of the dorsal aspect, less ashy on head, and the spot on the breast of richer, deeper color, and broader diffusion. The young of both sexes in autumnal plumage have the upper and lower eye-

lids *conspicuously fulvous-yellow*. In one specimen (male, taken August 21), the eyelids are *dirty-white*. From seven specimens (two females, five males) in my collection shot at Upton, Me., August, 1874. Irrespective of generic characters, the young of *G. philadelphia* in autumn are at once distinguishable from those of *Oporornis agilis* in corresponding stages, by the total absence of ashy on the central regions of throat, jugulum, and breast. So marked is the difference that obtains in this respect that I am easily able to separate the two species, when lying side by side, at a distance of fifteen or twenty feet.

#### 40. *Geothlypis macgillivrayi*.

*Young autumnal plumage*: male. Entire upper parts exactly as in *G. philadelphia* of corresponding age and sex. (See preceding species.) Sides of head very dark ashy, washed with olive. *Eyelids white*. Forepart of the breast light ashy-gray, with a slight superficial wash of olive, shading into buffy-white on the chin. (Again compare with preceding species.) Rest of under parts clear rich yellow, obscured somewhat with greenish-olive on the sides. Upon raising, or even slightly disarranging, the feathers of the throat, broad subterminal bands of black appear on each feather. These bands or blotches, as in the young *G. philadelphia*, are concealed by the ashy tips of the overlapping feathers. From a specimen in my collection shot at Nicasio, Cal., by Mr. C. A. Allen, August 1, 1876.

#### 41. *Geothlypis trichas*.

*First plumage*: male. Remiges, rectrices, etc., as in adult. Wing-coverts continuously light brown. Rest of upper parts, including sides of head, brown, lightest on rump, and slightly tinged with olive on the back. Throat yellowish-olive, deepening to dark clear olive on jugulum, breast, sides, and anal region. Abdomen dull yellow, with its lateral margins bounded by bands of fulvous-brown. From specimen in my collection shot at Upton, Me., August 26, 1874. Two other specimens, taken respectively July 28 and August 10, present no appreciable difference from the birds first described.

#### 42. *Pyranga rubra*.

*Occasional plumage*: male. Wings and tail black; entire plumage of body rich orange, with a greenish tinge on flanks and anal region. From a specimen in my cabinet, collected by Mr. C. J. Maynard, at Waltham, Mass., May 27, 1869. This remarkable specimen I for a long time considered unique, but I have recently examined another in the possession of Mr. Arthur Smith, of Brookline, which is its precise counterpart, and Mr. Ridgway tells me he has seen still others. This plumage is not to be confounded with the ordinary immature one of this bird, where the scarlet is simply of a lighter shade or mixed with patches of yellowish-green. It is a pronounced uniform coloring, and apparently a completed plumage.

Unquestionably it is abnormal, but hardly to be placed in a category with albinism, and probably it is not very unfrequent. Adult males of *P. rubra* change to the greenish autumnal plumage of the female and young, a fact not generally known. They may in that stage be distinguished by the blacker coloring of the wings and tail. I have never seen the young males in autumn with red feathers appearing in the plumage, as spoken of by writers ; probably such specimens may be referred to adult birds taken in August or September, with the moult only partially effected ; many of such examples I have now before me, all unquestionably adults. The scarlet bands on the wing-coverts of some specimens are to be regarded as individual adornments, independent of age. Many comparatively immature specimens possess them, while in some of the finest birds they are wanting.

#### 43. *Hirundo horreorum.*

*First plumage:* female. Fork of tail not deep ; outer feathers projecting one-half inch beyond the inner ones. Remiges and rectrices brown ; upper parts, in general, glossed with dull steel-blue ; feathers of rump and upper tail-coverts edged with rusty ; frontal band narrowed to a mere line of pale fawn-color. Beneath similar to adult, but everywhere paler. From a specimen in my collection taken at Rye Beach, N. H., August 21, 1872.

#### 44. *Tachycineta bicolor.*

*First plumage:* male. Upper parts uniform dark slate, with a fine silky gloss ; feathers of interscapular region faintly edged with pale fawn. Secondaries edged and tipped with pale cinnamon-gray. Under parts soiled white, with a faintly indicated pectoral band of pale ashy-brown. From a specimen in my collection, shot at Cambridge, June 22, 1872.

A good series of summer specimens shows well the transitional stages. The first plumage is worn much longer than in most birds, and the autumnal dress very slowly acquired, the metallic tinted feathers appearing one or two at a time. The remiges are also moulted by the young, as well as by the adult, and both in the autumnal plumage have the last pair of secondaries broadly tipped with pure white. This remarkable feature, so far as the specimens at hand go to show, is entirely characteristic of this plumage.

#### 45. *Petrochelidon lunifrons.*

*First plumage:* male. Top of head, back, and scapulars dark brown ; collar around nape, dull ashy, tinged anteriorly with rusty. Rump as in adult, but paler ; forehead sprinkled with white, and with a few chestnut feathers. Secondaries broadly tipped with ferruginous. Throat white, a few feathers spotted centrally with dusky. Breast and sides ashy, with a rusty suffusion, most pronounced on the latter parts. A very small area of pale chestnut on the cheeks. From a specimen in my collection taken at Upton, Me., July 27, 1874.

46. *Cotyle riparia.*

*First plumage:* male. Upper parts brown, each feather edged with ferruginous, this edging broadest on the rump and secondaries, narrowest on the crown and nape. Beneath like the adult, but with the pectoral band strongly washed with ferruginous, and the throat thickly spotted with the same color. In my collection, from Rye Beach, N. H., August 24, 1872. Autumnal specimens have the secondaries tipped with white, but not so broadly as in *Tachycineta bicolor*.

47. *Ampelis cedrorum.*

*First plumage:* female. Above generally duller cinnamon than in adult, with obscure streakings of dusky-buff; rump grayish-brown with a tinge of olive. Tail narrowly tipped with gamboge-yellow. Two secondaries on each wing slightly tipped with the red waxen appendages. Entire under parts brownish-buff, palest about anal region, deepest on throat and chin; breast and sides streaked thickly with cinnamon-brown. A dull black line, starting from the nostril, passes through the lore to the eye, where it terminates, embracing, however, the anterior half of both eyelids. From a specimen in my collection, taken at Upton, Me., August 14, 1874. I have seen specimens of this species in the first plumage with not only the secondaries wax-tipped, but several of the tail-feathers also. Nor is this horny appendage peculiar to the male, as has been stated, for several undoubted females before me have it fully developed. Much variation likewise obtains among different individuals in respect to the number and position of these appendages. One specimen (a male, Cambridge, March 21, 1870) has *every feather* of the tail conspicuously wax-tipped, in addition to nine of the secondaries on each wing, while another has the primaries (excepting the first three) tipped broadly with white, and in the centre of each white spot a smaller one of yellow.

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NOTES ON SOME OF THE BIRDS OF CALAVERAS COUNTY,  
CALIFORNIA, AND ADJOINING LOCALITIES.

BY ROBERT RIDGWAY.

SEVERAL small lots of birds received at the National Museum from its correspondent, Mr. L. Belding, of Marysville, California, collected chiefly in Calaveras County, in that State, are of great in-



terest, as showing a somewhat remarkable fauna for a locality situated as this is on the Pacific slope of the Sierra Nevada, there being a curious intermingling of Eastern, Northern, and Southern species with those usually considered as truly "Californian." The collections thus far received embrace only forty-seven species (including races), a list of which, with remarks, is given below:—

1. *Mimus polyglottus*. No. 73,609, December 26, 1877.
2. *Myiadestes townsendi*. No. 73,610, ♂ ad., May 4, 1877.
3. *Phænopepla nitens*. No. 73,534, Murphy's, May, 1877.
4. *Cinclus mexicanus*. No. 73,533. No date.
5. *Regulus satrapa*. No. 73,535, ♂ ad. No date.
6. *Catherpes mexicanus*, *β. conspersus*. No. 73,045, Murphy's, February 7, 1877.
7. *Thryomanes bewicki*, *β. spilurus*. No. 73,612, January 5, 1877.
8. *Sitta carolinensis*, *β. aculeata*. No. 73,608, January 5, 1877.
9. *Sitta canadensis*. No. 73,534. Big Trees, alt. 4,500 feet, May 19.
10. *Helminthophaga ruficapilla*. Several specimens in very bright spring plumage, agreeing entirely with Eastern examples both in colors and proportions. The supposed Western race, "*var. gutturalis*" (Hist. N. Am. Birds, I, p. 191), based upon a special plumage, is therefore untenable. This common "Eastern" species, of which autumnal specimens only have been recorded from the Western Province, Mr. Belding finds quite common on the Sierra Nevada, and has ascertained that it breeds in Calaveras County.
11. *Helminthophaga celata*, *β. lutescens*. Nos. 73,613, juv., Big Trees, May, 1877, and 73,614, ad., January 8, 1878 (!) A permanent resident, both breeding and wintering.
12. *Dendrocæca occidentalis*. Nos. 73,039, ♂, and 73,040, ♀, Big Trees, May 20, 1877. In the brightest spring plumage, the male with the whole head, except throat, pure gamboge-yellow, the pileum immaculate!
- [13. *Dendrocæca coronata*. Mr. Belding writes that he thinks he has got this species "during a recent visit to Murphy's." This is very likely, since it is now known to be of not uncommon occurrence in certain parts of California.\* I have a specimen obtained April 9, 1877, at Nicasio, Marin County, by Mr. C. A. Allen, who writes me that he has frequently taken it. I am also informed by M. J. A. Allen that the Museum of Comparative Zoölogy possesses specimens collected at Haywood, Alameda County, by Dr. J. G. Cooper.]
- [14. *Geothlypis trichas*. Two specimens seen at Marysville, January 2, 1878 (!).]
15. *Lanivireo solitarius*. Nos. 73,041, and 73,042, males, Big

\* Has been subsequently received from Mr. Belding.

Trees, May 10, 1877. Apparently the true *solitarius*. Of common occurrence, and breeding.

16. *Lanivireo cassini*. No. 73,537, ad. No date.

17. *Vireosylvia gilva*,  $\beta$ . *swainsoni*. No. 73,043. No date.

18. *Collurio borealis*. Nos. 73,615 and 73,616, January 2 and 8, 1877.

19. *Collurio ludovicianus*. Nos. 73,617 and 73,618. No date. These examples, like most Californian ones, are by no means referable to *excubitoroides*, but are fully as dark as the darkest individuals of true *ludovicianus* from the Southern Atlantic and Gulf States.

20. *Hesperiphona vespertina*. No. 73,538, ♂ ad. No date.

21. *Pinicola enucleator*,  $\beta$ . *canadensis*. No. 73,539, ♂ juv. Soda Springs, Placer County, September 28, 1877.

22. *Carpodacus cassini*. No. 73,048, ♂ ad. Big Trees, May 20, 1877.

23. *Chrysomitris tristis*. No. 73,630. No date.

24. *Chrysomitris lawrencii*. No. 73,629, ♂ ad., January 9, 1878.

25. *Chrysomitris pinus*. No. 73,540. Murphy's. No date.

26. *Chondestes grammacus*. No. 73,541. Murphy's, February, 1877 (!).

27. *Poœcetes gramineus*,  $\beta$ . *confinis*. No. 73,542. No date.

28. *Passerculus sandwichensis*,  $\gamma$ . *alaudinus*. Nos. 73,071, April, 1877 ; 73,625-7. No date. ("Summit of Sierra Nevada, lat. 39°.")

29. *Zonotrichia leucophrys*. No. 73,543. No date.

30. *Spizella socialis*,  $\beta$ . *arizonæ*. Nos. 73,544, Soda Springs, Placer County, September, 1877, 73,628, Calaveras County. No date ; also seen January 6, 1878.

31. *Melospiza fasciata*,  $\beta$ . *guttata*. No. 73,050, ♂ ad. Murphy's, March 20, 1879. No. 73,619. No date.

32. *Melospiza fasciata*,  $\gamma$ . *fallax*. No. 73,621. No date.

33. *Melospiza fasciata*,  $\delta$ . *heermanni*. No. 73,621, July, 1877. Probably the resident form.

34. *Melospiza lincolni*. Nos. 73,540, 73,622-4. No dates.

35. *Passerella iliaca*,  $\delta$ . *megarhyncha*. No. 73,049, ♂ ad. Big Trees, May, 1877.

36. *Myiarchus cinerascens*. No. 73,546. Murphy's, April 17, 1877.

37. *Sayornis nigricans*. A very curious albinose example of this species (No. 73,611) is colored as follows : Prevailing color very pale pearl-gray, fading to white on the abdomen and lining of the wing. Wing-coverts tipped with creamy buff, forming two distinct narrow bands. The specimen is a full-grown young one, as shown by the buff wing-bands and the texture of the feathers. Slight indications of the normal plumage are seen in a small black spot just above the posterior angle of the right eye, and several black feathers among the lesser wing-coverts, while, according to the collector, there was a spot of the same color on the breast, but this

was carried away by the shot. The specimen was obtained at Stocton, July, 1877.

38. *Contopus richardsoni*. No. 73,547. No date.

39. *Empidonax pusillus*. No. 73,044. Stocton, July, 1877.

40. *Empidonax obscurus*. No. 73,047. Murphy's, April 28, 1878.

41. *Empidonax hammondi*. Nos. 73,045-6. Murphy's, April 28, 1878.

42. *Picus nuttalli*. No. 73,033. Murphy's, Calaveras County (alt. 2,000 feet), April, 1877.

43. *Picus pubescens*. An adult male (No. 73,606), collected December 27, 1877, is absolutely typical *P. pubescens*. There is a large cluster of white spots covering the lesser wing-covert region, while the greater coverts have a row of white spots at the base, more or less concealed by the middle coverts; the secondaries and tertials are likewise completely crossed by bands of white spots. I have seen very many Western examples of this bird *approaching* the true *pubescens*, to a greater or less degree, but this is the first I have seen having the row of spots at the base of the greater coverts, and the conspicuous cluster of white spots, forming an irregular broken patch on the middle coverts, — the essential characters of *pubescens*, as restricted.

44. *Picus pubescens*,  $\beta$ . *gairdneri*. No. 73,607, ♂ ad. December, 27, 1878.

45. *Sphyrapicus thyroideus*. Nos. 73,548, ♂ ad. and 73,559, ♀ ad. No dates.

46. *Colaptes auratus*,  $\beta$ . *mexicanus*. Nos. 73,603, and 73,605. December, 1877.

47. *Colaptes auratus*,  $\gamma$ . *hybridus*. Nos. 73,602-4, December, 1877. This series is one of great interest. One specimen corresponds very nearly to *C. "ayresii"* of Audubon, having red "mustaches," gray throat, and yellow shafts; the latter, however, have a decided orange cast, while there is merely a trace of the scarlet occipital crescent. The most interesting specimen of all, however, is No. —, of which, unfortunately, the tail only was sent. In this the rectrices are deep red, as in true *mexicanus*, with the exception of the middle pair, which are pure gamboge-yellow, without a trace of orange; the contrast being thus very striking. Another specimen, of which the tail only was sent, is similar except that the middle tail-feathers are pale-pinkish instead of yellow.

Records of the occurrence on the Pacific Slope of species formerly considered exclusively Eastern, have now become so numerous as to render it extremely probable that, as the various districts of our Western domain are more fully explored, the number of species common to both sides of the continent will be considerably increased and the list of those peculiar to the Eastern Province correspondingly diminished. The transfer from the latter category to the former may be considered as established with regard to several of the species enumerated above, as *Dendroica coronata*,

*Helminthophaga ruficapilla*, *Lanivireo solitarius*, *Collurio ludovicianus*, and *Zonotrichia leucophrys*. It should be borne in mind, however, that every species is very much more local in the West, where modifications in topographical details are intricate, involving very great variations of climate and vegetation within a small compass of territory, than in the East, where the whole country presents a great uniformity of surface, thus allowing a much more general dispersion of vegetable and animal life.

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NOTES ON THE BREEDING HABITS OF HUTTON'S VIREO (*VIREO HUTTONI*) AND THE GRAY TITMOUSE (*LOPHOPHANES INORNATUS*) WITH A DESCRIPTION OF THEIR NESTS AND EGGS.

BY WILLIAM A. COOPER.

HUTTON'S Vireo (*Vireo huttoni*) breeds in the vicinity of Santa Cruz, though not in abundance. Retiring in habits, their nests and eggs are rarely found. April 7, 1874, I found a nest placed ten feet from the ground, suspended from a dead branch of a *Negundo*, containing three eggs incubated about five days. March 30, 1875, I found another nest placed eight feet from the ground, suspended from the small twigs of a *Frangula*. The bird showed little signs of fear, and would not leave the nest till I almost touched her; then she flew to a tree near by, and uttered a single note, *twea*, repeated every three or four seconds. When I took the nest she hopped around me from twig to twig, venting her sorrow in a plaintive *twik, twea; twik, twea*.

The nest — a neat, compact structure, composed of fine vegetable fibres, bits of paper, and grasses covered on the outside with green and gray mosses, lined with fine grasses — measures 3.25 in ches in diameter outside, 1.75 inside; depth 2.25 outside, 1.50 inside.

The eggs, four in number, are white (a delicate blush-color before blown), marked with minute dots of reddish-brown, more numerous toward the larger end. They measure respectively, .70 × .52, .70 × .51, .69 × .51, .68 × .52. Two other nests were found, each containing four eggs. They were placed, one in a *Negundo*, thirty feet high, the other at the extremity of an oak limb, twenty-five feet from the ground. Of the latter the female was so unsuspicious that when caught and removed from the nest she immediately returned to it.

April 4, 1877, while collecting on the foot-hills four miles from Watsonville, my undivided attention was drawn toward a Gray Titmouse, whose scolding outcry, if not intended for me, was nevertheless so taken. Observing that the bird had a large insect in its bill, I concluded it was about to feed its young, or possibly its mate. Taking my station behind the trunk of a tree, I waited in vain for nearly an hour for it to enter its nest. It flew from one branch to another, favoring one part of the tree, uttering its cry continually. My time being limited, I concluded to examine the tree, and was agreeably rewarded by finding the nest immediately. This was placed in a hollow in the end of a limb of an oak, five feet from the ground, the mouth of the hole very small. The female was on the nest, and would not leave, fighting even unto death.

The nest is composed outwardly of grasses, the inner portion of fur of rabbits and other animals, besides a few hairs and feathers. It measures 7.50 inches in diameter outside, 2.50 inside; depth, 2.50 outside, 1 inside.

The eggs, four in number, had been incubated about five days. The ground-color is white, marked over the whole egg with minute irregular spots of a pale reddish color. The most spotted egg has a perceptible pinkish appearance. Measurements,  $.68 \times .53$ ,  $.68 \times .52$ ,  $.64 \times .52$ ,  $.64 \times .52$ .

I anticipate finding, in additional sets of the eggs of this species, deeper-colored and larger markings, with considerable variation of size and shape, besides a larger number of eggs.

Santa Cruz, California.

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## A DESCRIPTION OF UNUSUALLY DEVELOPED INDIVIDUALS OF THREE SPECIES, AND REMARKS ON UNCOMMON PLUMAGES IN SEVERAL OTHERS, TAKEN NEAR WEST POINT, N. Y.

BY EDGAR A. MEARNS.

**1. *Geothlypis philadelphia*, (Wilson) Baird. MOURNING WARBLER.**—A specimen of this species (No. 1000 ♂, May 26, 1876, E. A. M.) is remarkable for its high development. All of its markings are unusually bright; the chin, throat, and forepart of breast almost solid black; the feathers of the chin and upper part of the throat only exhibiting the



faintest margins of ash. Professor Baird\* has remarked: "It is quite possible that in the full-plumaged male the entire throat may be black, as there is a tendency to this in some specimens."

**2. *Setophaga ruticilla*, (Linné) Swainson.** REDSTART. — A male of this species, which I took here, is also remarkable for its high state of development (No. 1003 ♂, May 17, 1876, E. A. M.). It is a fully adult and highly plumaged bird. Its chief peculiarity consists in the extreme development of the orange-red on the ventral surface, and the restriction of the black to the forepart of the breast, where its margin is quite sharply defined, being abruptly intercepted by the orange-red, which occupies the *whole under parts and sides of the body, with the exception of the under tail-coverts*, which are white at base, the longest feathers being blackish. The orange-red at the base of the rectrices and remiges is also much less restricted than in the normally plumaged individual.

**3. *Ampelis cedrorum*, (Linné) Sclater.** CEDAR-BIRD. — I have been so struck by the great variation in different specimens of this species, in regard to the red wax-like appendages, that I have taken particular pains to procure a large series of specimens illustrating this difference. In this series I can scarcely detect any sexual difference in that respect, except that the particularly well-developed specimens are all males. In the normal plumage the waxen appendages are confined to the tips of the secondary remiges, but in my cabinet are several specimens which have them affixed to the *primaries*, and in several instances even to the *rectrices*; but they are usually small and few in number. One specimen has several of these attachments to the primaries, which are nearly as well developed as those on the secondaries. But the most remarkable specimen is a handsome male (No. 545, ♂ ad., April 11, 1875, Highland Falls, N. Y., E. A. M.), having these ornaments attached, not only to each of the secondaries and *three of the primaries*, but each of the rectrices is embellished by a well-developed red appendage. Several other specimens have large red tips to each of the rectrices; and one (No. 1558 ♂, Feb. 23, 1878, E. A. M.) has *five* of its primary remiges (5th to 9th) tipped with yellow. Professor Baird† says: "A specimen from Guatemala (No. 50,455 ♂) is almost identical with examples from the United States, but differs in having a small spot of yellow at the tip of each primary; also there are red appendages on the tip of a few tail-feathers, as well as the *longest feather of the lower tail-coverts*."‡

While speaking of this species, it may be well to add, that in specimens taken in worn plumage, late in summer, the colors are very much bleached, all of the colors being very much paler; the white band across the fore-

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\* Birds of N. Am., by Baird, Cassin, and Lawrence (Vol. IX of Pacific Railroad Reports), p. 244, 1858.

† Baird, Brewer, and Ridgway, Birds N. Am., Vol. I, p. 401, 1874.

‡ Italics my own.

head is very much broadened, and the black of the chin much lightened. The top of the head and neck has an ochraceous suffusion, and the cinnamon-color of the back extends into, and partially subdues the ash of the rump.

4. *Helminthophaga peregrina*, (Wilson) Cabanis. TENNESSEE WARBLER. — I have a curious albinistic variety of this species (No. 92 ♂, May, 1874, E. A. M.). It was shot among the blossoms of a plum-tree, where it was seen skipping about in the liveliest manner. Its head is pure white, except a very slight sulphury suffusion on the crown; the residue of the plumage is much lightened, and with occasional patches of sulphury-white feathers on the back.

5. *Dendroeca pennsylvanica*, (Linné) Baird. CHESTNUT-SIDED WARBLER. — A spring female of this species (No. 1437 ♀, May 19, 1877, E. A. M.) seems to have passed by its spring moult, since it is still in the autumnal plumage, except for the appearance of a few black streaks on the back. The plumage is worn and dingy, and exhibits no trace of the chestnut side-stripe.

6. *Corvus americanus*, Audubon. COMMON CROW. — There is a peculiarity of the plumage of the Crow, which I have noticed in a number of specimens shot during the breeding season, in May. All specimens shot at this season do not exhibit this peculiarity, and some show it in a more marked degree than others. These specimens are characterized by the entire absence of the violet gloss on the wings and tail, those parts being of a lustreless, purplish-brown color. Some specimens have the concealed bases of the feathers of a fine, violet-glossed black, and the residue of a rich bronze hue.

My attention was first attracted to this state of plumage by two birds which I shot in the very act of devouring the eggs of the Night Herons, in the heronry on Constitution Island, in the Hudson River, on the 23d of May, 1877. These birds were extreme examples. This condition of plumage may not be limited to the breeding season, for I have a specimen shot in winter, which has one of the rectrices of a rich, purplish bronze-color; but I found this plumage prevailing in the greater number of specimens shot during the last week in May.

7. *Picus pubescens*, Linné. DOWNY WOODPECKER. — A female of this species (No. 449 ♀, February 26, 1875, E. A. M.) presents a very unusual appearance. It still retains a number of red feathers on both sides of the *nape*. The red feathers on the *crown* are said to be characteristic of the *young* female. It is interesting to know that the red feathers are retained so late in the season. The red patches on the *nape* were so conspicuous in the living bird as to cause it to be shot.

8. *Myiodiotes mitratus*, (Gmelin) Audubon. HOODED WARBLER. — Mr. C. Hart Merriam, in his late "Review of the Birds of Connecticut" (pp. 25 and 29), rectifies an error in the recent descriptions of the females of this species. I wish to add my testimony to his conclusions, "that the

female bird, like the male, is several years — at least three — in attaining its full plumage; and that the two sexes, when fully adult, can only be distinguished by the fact that, in the female, the throat, though strongly tinged with black, is never *pure black* as in the male." Long ago I discovered these facts, as the bird is an abundantly breeding summer resident here, where I have taken several of their nests in a single walk. With a large series of specimens before me, I can fully indorse Mr. Merriam's views. The females of the second summer are entirely without any black upon the head, and I have frequently found them sitting upon their eggs in this condition. Males of the same age show very evident traces of black. Only in extreme examples does the black on the hood and throat of the female approach the purity of those parts in the male.

**9. *Siurus motacilla*, (Vieillot) Coues. LARGE-BILLED WATER-THRUSH.**—I wish to call attention to the fact that the chin and throat of this species are *not* "entirely immaculate,"\* as described in the books. On the contrary, I have never seen a specimen, in the large number of birds belonging to this species which I have handled, that lacked minute markings of brown on the chin and throat, though these are much less strong than in *S. navius*. There is also a whitish stripe extending from the base of the maxilla to the back of the eye, involving the under lid, and separated, anteriorly, from the superciliary line, extending from the bill, above the eye, to the nape, by a narrow dark band. This stripe is often quite conspicuous.

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## NOTES ON *JUNCO CANICEPS* AND THE CLOSELY ALLIED FORMS.

BY T. M. BREWER.

AMONG a collection of nests and eggs received the past season from Colorado, coming from the vicinity of Summit County, the highest inhabited portion of that State, are three nests of the *Junco caniceps*. They are assigned to the common resident *Junco* of that region by Mr. Edwin Carter, who identified them; the parents, in each instance, having been shot on the nest, and ascertained to be the bird there known as the Cinereous Snow-bird. Unfortunately the individual parents were not preserved with their nests, so that it is now impossible to verify these identifications. It therefore remains an interesting question whether the eggs of the *Junco caniceps* exhibit such surprising variations as are shown in these sets, or

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\* Baird, Brewer, and Ridgway, *Hist. of N. Am. Birds*, Vol. I, p. 287, 1874.

whether there is more than one species that breed in the high mountain-regions of Colorado. I use the word "species" for the mere convenience of expression, but not as assuming that the several forms of *cinereus*, *dorsalis*, *caniceps*, etc. are *bona fide* species.

There are in the Smithsonian collection well-identified sets of the eggs of *Junco cinereus*, *dorsalis*, and *caniceps*, one set of each. Of course this is not enough to establish the typical peculiarities of their eggs. The set of *Junco cinereus* were taken by Mr. Henshaw in the mountains of Southern Arizona, at an altitude of 9,500 feet. It was taken August 1st, the eggs were fresh, and it was probably the second laying of the season. They appeared to me to be of an unmixed greenish or bluish white. When taken they were said, while almost immaculate, to show the presence of a few minute punctate reddish-brown spots, irregularly disposed over the surface, and Mr. Henshaw writes me, under date of February 18, 1878, "two of the four eggs still show the minute reddish-brown punctulations — they can scarcely be said to be spots — alluded to in my report, though these are fainter than when first collected. There are perhaps twenty of these isolated dots scattered over the surface; without a critical notice the eggs would be passed by as immaculate. The ground-color of these eggs is now a dead bluish-white, and shows no trace of green."\*

The set of *Junco dorsalis* was also taken by Mr. Henshaw in the mountains near Camp Apache, Arizona. These four eggs had the same pale greenish-white ground-color, and all exhibit, on careful examination, brownish-red spots, very minute, and scattered over the whole surface, — in one egg much more abundantly, — forming a confluent curve around the larger end. The eggs of the two sets are about equal in size, ranging from .84 to .77 of an inch in length, and averaging about .63 in breadth.

"The set of *Junco caniceps*," Mr. Henshaw writes me, "were taken in Colorado by Mr. J. H. Batty. There were originally five in the nest. The measurement of the remaining four are  $.82 \times .61$ ,  $.83 \times .61$ ,  $.78 \times .60$ ,  $.86 \times .62$ ; ground-color bluish-white (probably originally with a tinge of greenish), profusely overlaid with small irregular spots, and blotches of reddish-brown and lilac. The eggs of this set vary considerably in the amount of markings and the manner of distribution. In two these consist of minute punctulations that

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\* In his report Mr. Henshaw describes it as greenish-white.

over-cloud the ground-color. In the rest the markings are bolder and very conspicuous at the larger end, where they are confluent in a ring."

Of the three sets of the eggs of *Junco caniceps*, from Mr. Edwin Carter, in one the eggs are almost entirely white, with a very slight tinge of greenish, and measure .83 of an inch in length, and from .59 to .61 in breadth. More or less diffused over the whole surface of the eggs are very minute and quite obscure reddish dots. Around the larger end in each case are fainter cloudings of purple, clearly perceptible, if looked for, but liable to escape notice if not carefully observed. This set, in its general characteristics, is very similar to the eggs of *Junco cinereus* above mentioned, and intermediate between them and those of the *Junco dorsalis*. In regard to its identity there seems to be no doubt. Mr. Carter writes me: "Of the set in your possession I am positive. I took it, June 23, 1873, having walked four miles to secure it. On the same day, and in the same locality, I found another nest, which was secured. Both birds were startled from their nests and shot, without leaving my sight."

The second set mentioned is now in my possession, and is more plainly and strongly marked than either of the sets referred to in the Smithsonian, more so even than that of *Junco caniceps*. The eggs, three in number, measure .82  $\times$  .60, .80  $\times$  .61, .81  $\times$  .60. The markings are a combination of rusty and purplish brown, often confluent and concentrated in greater blotches about the larger ends, while also more or less diffused over the whole surface of the eggs.

The third set, now in the Cambridge Museum, was taken by Mr. Carter's partner, Mr. Wilkinson, in the high mountains bordering the South Park. He flushed the parent from its nest and shot it, but unfortunately did not preserve it. For the following description of this set, I am indebted to Mr. J. A. Allen: "'*Cinereous* Snow-bird, South Park, Colorado, July 12, 1876. Nest on ground; four eggs.' The above is a full transcript of the collector's label. No nest was sent. Coll. M. C. Z., No. 1685. Ground-color white, minutely sprinkled all over with reddish-brown surface-markings, and deeper ones of a pale lilac. The markings are much more abundant near the larger end, where they form a rather broad band; in some of the specimens the smaller end is merely sprinkled rather thickly with minute dots, extending over the whole end. The reddish-brown markings are much the coarser and more prominent, and on one specimen form quite large blotches. The eggs measure, respectively, .88  $\times$  .63, .88  $\times$  .62, .90  $\times$  .65, .89  $\times$  .62."



Their large size and the peculiarity of their markings, so different from those of any *Junco* that I have ever seen, suggested a suspicion that they might be the eggs of the *Junco aikenii*, but this Mr. Carter does not regard as probable. The nests of the first two present nothing peculiar in their construction. They are saucer-shaped, and are merely loose aggregations of grasses and stems of plants, lined with fine material of a like nature.

Mr. Carter is confident that he has never met with more than three forms of *Junco* in Colorado, namely, *caniceps*, *oregonus*, and *aikenii*; the latter two he has known since 1859, when he first met with them in large numbers near Central City, but his observations have been mainly confined to the higher altitudes. He met with *aikenii* in the greatest abundance on the eastern slope of the main range, at an elevation of eight thousand feet, twelve years before Mr. Aiken first brought it to the attention of naturalists. The latter's first specimens were procured in the lower and eastern limit of their habitat, which will account for his speaking of their scarcity and their straggling habits. The same winter (1871-72) Mr. Carter, in his camp, a few miles west, and at an altitude greater by some three thousand feet, met with these individuals every day, in flocks of from a few individuals to those of a hundred or more.

Mr. Carter is also quite sure that all the adults of this species, of both sexes, are always found to possess the white wing-bands well defined, and that it is only the birds of the first year, in immature plumage, that furnish what has been mistaken for an intermediate form between this species and the typical *Junco hyemalis*. Mr. Carter has never, to his knowledge, met with *oregonus* or *aikenii* in Colorado during the breeding season, but thinks that they all move farther north to nest.

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## EFFECTS OF THE WARM WINTER ON THE MIGRATION OF BIRDS.

BY JOHN MURDOCH.

It is well known that in ordinary winters all our summer residents and autumnal visitors have taken their departure from the neighborhood of Boston by the month of December. From the

early part of September, when the Warblers and other gay summer visitors begin to leave us, the fall is a season of successive departures, until, when the ground is fairly covered with snow, nothing remains but those birds, like the Chickadee, who pass the whole year with us, and our regular winter-guests from more northern districts, who find our winters, severe as they are, more genial than the rigors of Canada and Labrador.

This winter, however, matters have been somewhat different. The delightful autumn weather persistently continued, until one began to doubt whether we were to have any winter at all. Up to the 30th of December there had not fallen an inch of snow, and the ponds and streams were hardly frozen, while in many places the grass was still green.

Naturally, some of our migratory birds took advantage of the clemency of the season to avoid starting on their long and tiresome journey, before they were actually forced to.

On December 29, while walking at a short distance from my house, in Roxbury, Mass., I was somewhat surprised to see a pair of Bluebirds (*Sialia sialis*) fly up from a fence, near at hand, and alight upon a tree not far off. There was, of course, no doubt as to their identity, as a Bluebird is not easily mistaken. This bird usually leaves us by the early part of November. On the same day, in Sharon, Mass., a friend of Mr. Ruthven Deane actually shot a Bluebird out of a small flock.

The Catbird (*Mimus carolinensis*) generally departs by the middle of October, but Mr. C. W. Townsend, a member of this Club, informs me that one of these birds was taken by J. F. Carleton, in a field at Woods Hole, Mass., on the 28th of last December.

Mr. Townsend also saw as late as the first of January small flocks of the Yellow-rumped Warbler (*Dendraeca coronata*), in the woods, near the shore, at Magnolia, Mass. This bird has been known to linger as late as the early part of December on Cape Cod, but never so far north of the Cape.

These instances all point to the probability that many of our autumn visitors took advantage of the season to prolong their stay beyond their usual custom.

## Recent Literature.

SHARPE'S "CATALOGUE OF THE BIRDS IN THE BRITISH MUSEUM." — Three volumes of this important work have now appeared. The first, devoted to the Diurnal Birds of Prey, was published in 1874; the second, embracing the Owls, in 1875; and the third, treating of several families of Passerine birds, in 1877.\* These volumes are intended to embrace descriptions of all the known species of the groups treated, and hence form invaluable hand-books. The descriptions are generally very detailed, embracing an account of the various stages of plumage through which the different species pass, and copious bibliographical references are given. While the labor bestowed upon these volumes is evidently very great, they are not in all respects what we should like to see them. No generic diagnoses, for instance, are given beyond what may be gleaned from the "Keys to the Genera" of each subfamily, and generally no comparative characters of the species, except those afforded by the "Keys" accompanying the genera. The keys themselves, both of the genera and species, are a great help in determining the species, but do not always fully serve their intended purpose. The species are generally described without direct comparison with their near allies, and although the descriptions are sometimes greatly extended, they too often fail to duly emphasize important or distinctive points. By a judicious grouping of common characters and contrasted diagnoses, the essential points of difference between closely allied forms would have been made more prominent, and the amount of text rather lessened than increased. Our gratitude for a general work on the birds of the world, containing so many points of excellence as the present, ought perhaps to soften our criticism, especially when it is remembered how few have either the courage, the endurance, or access to the necessary material, for the great task Mr. Sharpe has so energetically undertaken and is so ably carrying out.

The Raptorial Birds are treated as an order (*Accipitres*), with three suborders, *Falcones*, *Pandiones*, and *Striges*. For the Diurnal Birds of Prey, the old family divisions of *Vulturidæ* and *Falconidæ* are retained, except that the Fish-Hawks (genera *Pandion* and *Polioaëtus*) are removed from the latter to form the wholly untenable "suborder" *Pandiones*. The

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\* Catalogue of the Birds in the British Museum. Vol. I. Catalogue of the *Accipitres*, or Diurnal Birds of Prey. By R. Bowdler Sharpe. 8vo. pp. xiii. 450, pls. xiv. London, 1874. Vol. II. Catalogue of the *Striges*, or Nocturnal Birds of Prey. By the same. 8vo., pp. xi, 326, pls. xiv. 1875. Vol. III. Catalogue of the *Coliormorphæ*, containing the families *Corvidæ*, *Paradisidæ*, *Oriolidæ*, *Dicruridæ*, and *Prionopidæ*. By the same. 8vo, pp. xiii, 344, pls. xiv. 1877.

Owls (*Striges*) are all referred to the family *Bubonidæ*, except the genera *Strix* and *Phodilus*, which alone constitute the family *Strigidæ*.

Mr. Sharpe gives the number of species of the Diurnal Birds of Prey as three hundred and seventy-seven, of which twenty-three are regarded as doubtful. Of the remainder three hundred and twenty-five are represented in the collection of the British Museum, the total number of specimens falling little short of twenty-five hundred.

Respecting the North American species, it may be noted that our common Rough-legged Hawk is considered as specifically distinct from the European, the two bearing the names respectively of *Archibuteo sanctijohannis* and *A. lagopus*. The Golden Eagles (*Aquila chrysaëtus*), the Peregrine Falcons (*Falco communis*), and the Fish-Hawks (*Pandion haliaëtus*), on the other hand, are regarded as identical. The generic term *Cerchneis* (Boie, 1826) is adopted for the Sparrow-Hawks, of which several of Mr. Ridgway's varieties are raised to the rank of species.

Of the Owls, about one hundred and ninety species are recognized, of which ten are regarded as doubtful. They are represented in the British Museum by about eleven hundred specimens. The Snowy Owl (*Nyctea scandiaca*) of North America, contrary to the opinion of some American writers, is held to be identical with that of Europe, the two being considered as not separable even as races, Mr. Sharpe being unable to appreciate any differences of color, but admitting a slight difference in the amount of feathering of the toes. The Long-eared Owls (for which the generic name *Asio*, Brisson, 1766, is adopted) of America and Europe he admits as subspecies of a circumpolar "*Asio otus*." The nearly cosmopolite Short-eared Owl (called "*Asio accipitrinus*") he divides into several races or subspecies, of which the American (its habitat including both North and South America) forms "*β. Asio cassini*." Richardson's Owl is regarded as identical with the European Tengmalm's Owl (*Nyctale tengmalmi*). Of the Barn-Owls (*Strix flammea*), while recognizing a number of "striking forms," he says: "My conclusion with regard to the Barn Owls is, that there is one dominant type which prevails generally over the continents of the Old and New Worlds, being darker or lighter according to different localities, but possessing no distinctive specific characters. Insular birds vary, but cannot be specifically distinguished, as they can always be approached by continental specimens in a large series."

In the third volume Mr. Sharpe enters upon the great series of Passerine Birds, of which he here treats the families *Corvidæ*, *Paradisidæ*, *Oriolidæ*, *Dicruridæ*, and *Prionopidæ*, which he unites to form the group *Coliomorphæ*, equal to the *Coliomorphæ* of Sundevall, with some genera added and others excluded. The species here described by Mr. Sharpe number three hundred and sixty-seven, all but about fifty of which are represented in the British Museum, the number of specimens being a little over two thousand. Of these four families the *Corvidæ*, or Crows and Jays, are alone represented in America, the others being mainly African, Indian, and

Australian. In respect to North American species, the Raven (*Corvus corax*) is not separated even varietally from the Raven of the Old World, Mr. Sharpe stating that the characters given by authors for their separation do not hold good in his series of specimens. In respect to changes of nomenclature among North American species, it may be noted that the old genus *Corvus* is here much subdivided, so that our Fish-Crow stands as *Coleus ossifragus*, and the Common Crow as *Corone americanus*; *Nucifraga* (Brisson, 1760) appears in place of *Picicorvus* for the Clarke's Crow, and *Cyanurus* is regarded as a synonyme of *Cyanocorax*, our Blue-Jay (*C. cristatus*) being referred to the genus *Cyanocitta*. Nearly all of the numerous forms of Western Jays (genera *Perisoreus*, *Cyanocitta*, and *Aphelocoma*), recognized as varieties by American ornithologists, are raised by Mr. Sharpe to the rank of species, two of which (*Perisoreus capitalis* and *P. obscurus*) are figured. In this volume, in fact, very few "subspecies" are recognized.

We are sorry to see in Mr. Sharpe's third volume several instances of the use of the same name in a generic and specific sense for the same species, with such ridiculous results as "*Pica pica*," "*Pyrrhocorax pyrrhocorax*," etc., which is not only opposed to good taste, to say the least, but to a very generally accepted rule of nomenclature. Also that the value of his very full bibliographical references is impaired by his not adding the date of publication. This was very uniformly done in the first volume, and to some extent in the second, and we sincerely hope he will see fit to resume the practice in his later volumes. — J. A. A.

ROWLEY'S "THE PIED DUCK." — Mr. G. D. Rowley's monographic essay on the Labrador or Pied Duck (*Somateria labradoria*)\* is a timely and exhaustive contribution to the history of a species believed to be rapidly approaching extinction. Nearly all that relates to its literary history is here brought together, the paper consisting largely of excerpts gathered from the writings of all authors who have referred to the species. While apparently of rather frequent occurrence along our Atlantic coast, as far south at least as Long Island, New Jersey, and Delaware, fifty to thirty years ago, it has of late been rarely observed and few specimens appear to have been taken since 1868. Its last-recorded capture, as appears from a letter from Mr. George N. Lawrence, published in Mr. Rowley's paper, seems to have occurred "in the fall of 1874," when a specimen was obtained by Mr. J. Wallace, from Long Island, from which source the same gentleman had obtained four or five others during the previous five years. All were females or immature males, and only one adult male is known to have been taken in the last twenty years.

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\* *Somateria labradoria* (J. F. Gmelin). The Pied Duck. By G. D. Rowley, M. A., F. L. S., F. Z. S., etc., etc. Ornithological Miscellany, Vol. II, Part VI, pp. 205-223, with 5 plates, 1877. London, Quaritch, 15 Piccadilly, W.; Trübner & Co., Ludgate Hill, E. C.; R. H. Porter, 6 Tenterden St., Hanover Square, W.



Mr. Rowley here gives not only the literary history of the species, but discusses its relationship to the Eiders. Although following Mr. A. Newton in placing it in the genus *Somateria*, he does it with some degree of reservation. His paper is enriched with five plates, in which are figured the sterna of all the Eiders (*Somateria stelleri*, *S. spectabilis*, and *S. mollissima*), with that of the present species, and the bill and feet of this species and of the common Eider. A beautifully colored plate is also devoted to the illustration of the adult male, female, and young male. He has, however, to lament his ignorance of the nest and eggs, of the nestling plumage of both sexes, as well as of some of the subsequent immature stages, and calls the attention of American ornithologists to the importance of securing a scientific examination of the body of any specimen which the future may afford, notes of the color of the soft parts, and the preservation of the skeleton.

The paper also contains extracts from letters from Professors S. F. Baird and the late James Orton, and Messrs. D. G. Elliot and George N. Lawrence, concerning the recent occurrence of this bird along the Atlantic coast of North America, and closes with a list of all the specimens known to the author to be extant. These number only thirty-three, of which about twenty are preserved in different collections in the United States, and the remainder in European museums. About one half are adult males, and most of the remainder adult females. The localities, so far as known, are Long Island, New York, thirteen specimens; Calais, Me., two; Halifax Harbor, one; "Labrador," one, and one is recorded from Delhi, Michigan; eighteen in all, leaving fifteen from unknown localities. — J. A. A.

STREETS'S NOTES ON THE BIRDS OF LOWER CALIFORNIA AND THE HAWAIIAN AND FANNING ISLANDS. — Dr. Thomas H. Streets's report of his Natural History explorations made in connection with the United States North Pacific Surveying Expedition of 1873-75\* includes notes on about fifty species of birds, of which rather more than one half were collected on the coast of Lower California and adjoining portions of the Mexican coast. The author acknowledges his indebtedness to Dr. Elliott Cones, U. S. A., for the identification of the birds, and adds that he has "kindly furnished the notes accompanying that portion of the ornithological collection from the Californian Peninsula." The collection contains two specimens of Mr. Lawrence's rare *Passerculus guttatus* (known previously, from a single specimen from San José del Cabo), which, though formerly regarded as a variety of the *P. rostratus*, is here provisionally accepted as

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\* Contributions to the Natural History of the Hawaiian and Fanning Islands and Lower California, made in connection with the United States North Pacific Surveying Expedition, 1873-75. By Thos. H. Streets, M. D., passed Assistant Surgeon, U. S. Navy. Bulletin of the United States National Museum, No. 7, p. 172 (Birds, pp. 9-33), Washington, 1877.

a good species. It also embraces specimens of the rare Kuhl's Parrot (*Coriphilus kuhlī*) of the Fanning Islands, the precise habitat of which is now for the first time determined, and three new species, one of which, *Puffinus (Nectris) nativitatis*, from Christmas Island, is here for the first time described. The others are a Gallinule (*Gallinula sandvicensis*, Streets, Ibis, 1877, p. 25) from the Hawaiian Islands, and a Duck (*Chaulelasmus couesi*, Streets, Bull. Nat. Orn. Club, Vol. I, 1876, p. 46) from Washington Island. The breeding habits and eggs of Craver's Auk (*Brachyrhamphus craveri*) are also described, and there are many valuable biographical and other notes on several hitherto little known species. — J. A. A.

BENDIRE'S NOTES ON THE BIRDS OF SOUTHEASTERN OREGON. — In a list embracing one hundred and ninety-one species and varieties, Captain Bendire\* gives the results of field observations made in the vicinity of Camp Harney, Oregon, covering a considerable period. Aside from some former notes by the same author,† which treated more especially of the winter birds of this locality, we have here our first detailed information respecting the ornithology of the immediate region under consideration. Camp Harney, the central point, is situated on the southern slope of one of the western spurs of the Blue Mountains, and has an altitude of about four thousand eight hundred feet. The country to the northward is mountainous, and well forested with pine, spruces, and fir, intermixed with groves of aspen and juniper; in all other directions it is open, consisting of desert wastes of sagebrush and greasewood, with here and there more fertile tracts covered with nutritious grasses. As would be naturally expected, fully one half of the species are emphatically Western, or are represented by Western varieties. The fauna is distinctly, however, that of the Middle Province, although a few forms usually considered as confined to the Pacific slope are here represented. The list is enriched with copious biographical notes, including descriptions of the breeding-habits, nests, and eggs of a large number of the less well-known species, and forms a most important contribution to the ornithology of the West. — J. A. A.

RIDGWAY'S REPORT ON THE ORNITHOLOGY OF THE FORTIETH PARALLEL. — This long-delayed work‡ has by no means lost its importance

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\* Notes on some of the Birds found in Southeastern Oregon, particularly in the Vicinity of Camp Harney, from November, 1874, to January, 1877. By Captain Charles Bendire, U. S. Army. Proc. Bost. Soc. Nat. Hist., Vol. XIX, pp. 109–149, Nov. 1877.

† Notes on Seventy-nine Species of Birds observed in the Neighborhood of Camp Harney, Oregon, compiled [by Dr. T. M. Brewer] from the Correspondence of Captain Charles Bendire, 1st Cavalry U. S. A. Proc. Bost. Soc. Nat. Hist., Vol. XVIII, pp. 153–168, Nov. 1875.

‡ Report of Geological Explorations of the Fortieth Parallel. Clarence King, VOL. III.

through its late appearance, due to circumstances wholly beyond the control of its author. Based on field-work extending from about June 1, 1867, to the middle of August, 1869, and restricted to a comparatively limited field, not previously to any great extent explored, we have just what all the circumstances of the case would seem to warrant one in expecting, a thorough and exhaustive account of the ornithology of an interesting belt of country. The observations were mainly limited to that portion of the Great Basin included between the thirty-ninth and forty-second parallels, and extending from the Sierra Nevadas to the Wahsatch Mountains. First is given an account of the route of the survey, with a list of the camps. Then follows a short account of the physical features of the region, with a discussion of its "local avifaunæ," especial reference being had to the *station* of the different species represented. The term "avifauna" is hence here used in a rather unusual sense, referring rather to the habits of the species than to geographical areas. Thus we have (I) an "Arboreal Avifauna," subdivided into five categories of species, in relation to whether they frequent (1) the upper coniferous forests, (2) the cedar or nut-pine groves, (3) the aspen groves or copses, (4) the cañon shrubbery, and (5) the wooded river-valleys; (II) a "Terrestrial Avifauna," consisting of (1) birds of the sagebrush, (2) birds of the mountain meadows or peaks, and (3) birds of the lowland meadows; (III) a "Mural Avifauna," embracing (1) species strictly saxicoline, (2) species saxicoline only in nesting habits, and (3) species nesting in earth-banks; and, (IV) an "Aquatic Avifauna," consisting of aquatic species. These divisions are of course serviceable in indicating the station and habits of the different species, but do not, of course, strictly characterize faunal areas, in their usual geographical signification. "Descriptions of the localities where collections or observations were made," numbering forty-three, then follow, including lists of the species observed at each of these, where much time was spent. "General remarks on the Avifauna of the Great Basin," with an analysis of the species in reference to their geographical range, conclude the introductory portion of the Report, which forms, altogether, nearly ninety pages of exceedingly interesting matter. The "Report

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Geologist in charge. Vol. IV, Part III, Ornithology. By Robert Ridgway. 4to. pp. 303 - 670. 1877.

[As an important bibliographical matter to be remembered, it should be stated that current literature for a few years has contained repeated anticipatory citations of such a work as being then "in press,"—these citations sometimes involving questions of precedence; but the work, which was stereotyped in 1870, was entirely remodelled, and never appeared in its original form. The stereotype plates were melted in 1876, and no perfect copy of the original report exists though a single mutilated set of proofs is, or was, in possession of Dr. Coues. The matter was reset in 1876 or 1877, and the entire remodelling of the subject renders previous citations of the original suppressed report frequently inapplicable. — E. C.]

Proper" consists of a general list of the species, with limited bibliographical references, and copious biographical and other notes, including lists of the specimens obtained, their measurements, color of bill, feet, iris, etc., as recorded from the fresh specimen before skinning, with a record of nests and the number of eggs found in each. Many of the biographical notices are quite extended, and add greatly to our knowledge of the species to which they pertain. The Report, as a whole, is quite free from strictly technical matter, and hence attractive to general readers and amateurs, as well as of great value to specialists. Space forbids particular reference to even the more noteworthy portions of this part of the Report, but we can scarcely omit calling attention to the account of the Western Kingbird (*Tyrannus verticalis*), in which is detailed the wonderful intelligence and affection of several young birds of this species reared as camp pets, and which became thoroughly domesticated.

Although many of the observations and results of Mr. Ridgway's field-work with the Survey of the Fortieth Parallel are not now for the first time placed before the public, the Report seems to have lost little of its freshness. Although originally prepared, and even stereotyped, as early as 1870, it has been so recast that in point of nomenclature it represents the author's later views. — J. A. A.

RECENT LISTS OF THE BIRDS OF CENTRAL NEW YORK. — In "A Directory of the Ornithologists of the United States," published at Utica, N. Y., 1877, by S. L. Willard, Esq., sixteen pages are devoted to "A List of the Birds of Central New York." The author's remarks in the way of a prelude are thus briefly expressed: "The following is a complete list of the birds of Central New York, with notes on their abundance." This might lead one to expect a valuable contribution to our science, but a perusal of the "List" proves this supposition to be erroneous. Two hundred and sixty-seven species are enumerated, and among them are mentioned *Lophophanes bicolor*, *Poliophtila cerulea*, *Protonotaria citrea* ("occasional in Central districts; rare in Northern districts"), *Helminthophaga celata*, "*Seiurus ludovicianus*," *Oporornis agilis*, *Stelgidopteryx serripennis*, *Vireo philadelphicus*, *Ammodromus caudacutus*, *Melospiza lincolni*, *Chondestes grammacus*, *Guiraca cerulea*, *Cardinalis virginianus* ("summer resident"), *Quiscalus major*, *Corvus* "*carnivorus*" ("resident"), *Empidonax acadicus*, *Campephilus principalis*, *Strix pratensis*, *Cathartes aura*, *Meleagris gallopavo* var. *americana*, *Tetrao canadensis* ("resident in Northern districts"), *Cupidonia cupido*, *Lagopus albus*, *Agialitis wilsonius*, *Micropalama himantopus*, *Ardea egretta*, *A. candidissima*, *A. cerulea*, *Fuligula collaris*, *Histrionicus torquatus*, *Rhynchops nigra* ("occasional winter resident"), and many others of equal interest. But the author gives no data whatever concerning the dates and localities at which the specimens were procured; nor does he, in a single instance, mention an authority in connection with the occurrence of a species, thus holding himself responsible for all state-



ments made, a much graver responsibility than our young friend imagined when he undertook the task. Being somewhat familiar with the region to which this list pertains, I was requested to review it for the *Bulletin*, which circumstance led me to make inquiries of its author concerning about seventy of the species therein mentioned. Of this number he had the candor to admit that about thirty were included upon no grounds whatever, while some twenty more were taken from DeKay (and some of these were not known by DeKay, according to his own statements, to occur at all in New York State, and nearly all the others were known to him only from the vicinity of the coast, — far beyond the limits of “Central New York”). Quite a number of others rest on the strength of statements made by wholly unreliable boys, who thought they had “seen” the bird in question! On the other hand, some few species were inserted on the authority of perfectly reliable collectors (Romeyn B. Hough of Lowville, and Fred. J. Davis of Utica); but since the author did not see fit to mention authorities, it is impossible to discriminate between truth and error, and he must be held responsible for the whole. Above are the facts; I refrain from comment. It is due the author, however, to state that the “List” was prepared in great haste while the “Directory” (in which it appears) was passing through the press. He is now but “too well aware of its imperfections,” and when next he favors us with a contribution it will, no doubt, be worthy of a far different criticism from that which it has been my duty to give in this instance.

A word about local lists in general: There is, I fear, among our younger and less experienced collectors a strong and lamentably contagious tendency to rush into print before having become sufficiently familiar with the habits, distribution, and relative abundance of our birds, to be capable of preparing a creditable paper. Thus it is that very truthful and well-meaning people are sometimes led to display their ignorance in a most unnecessary and unfortunate manner. And it sometimes happens that less conscientious observers, who have not yet learned the importance of substantiating their own statements, or failing to recognize the value of exact data, so far forget themselves as to yield to the temptation of swelling their lists by the addition of species concerning which they know absolutely nothing. Mistakes are always liable to occur in human productions, and are to be expected — yes, may even be looked for, perhaps, with no inconsiderable degree of confidence — in works pertaining to this particular line of research; therefore, when found, they should be corrected in a spirit of scientific charity and lenient good-will. But when a man sits down, and in cold blood writes a list of birds on the authority of his own fertile imagination, he must expect to take the consequences. “Bad lists,” writes Mr. J. A. Allen, “are, of course, far worse than none at all, and if incompetent aspirants to fame in this direction will make such ventures, it is best, I think, not only for science, but for them personally to show them that such things are not to be done with impunity.”



The Rathbun-Fowler list of the Birds of Central New York has already been noticed in this journal (Vol. III, pp. 34, 35). Its title is "Complete List of the Birds of Cayuga, Seneca, and Wayne Counties." Like Willard's list, it assumes too much. Ornithologists of larger experience are more modest, and seldom employ the term "complete" in connection with their own works. The paper in question, however, was evidently prepared with some caution, and when carefully revised (in which task its author is now engaged) will certainly constitute a valuable contribution to the Ornithology of the State.

In the "Auburn Daily Advertiser" of September 3, 1877, under the heading "ORNITHOLOGICAL," T. J. Wilson, M. D., remarks: "I would make the following annotations to Mr. Frank R. Rathbun's 'List' from my own observations." He then goes on to mention sixteen species; and among other equally instructive sentences, occur these: "*Turdus mustelinus*. Found breeding in great numbers on Howland's Island." "*Parus atricapillus*. Found breeding along the river in numbers, in June '76." "*Geothlypis trichas*. Breeds commonly on Howland's Island, but leaves for the South in July." "*Collurio borealis*. A not uncommon winter visitor. I have one now taken by my brother in '76." Unfortunately the author does not deem it necessary to mention, directly, to what portion of the State his list pertains (though "Central New York" is evidently implied), but if "Howland's Island" and "the river" fall within the limits of the United States, the above information is certainly of great value! He also states that "*Rallus crepitans*" was taken on *Seneca River* in August, '75, but, if not too presumptuous, I would beg leave to suggest that the bird may prove to be *R. elegans*. The finding of a nest (two eggs) of the Black Rail (*Porzana jamaicensis*) "in the reeds below Cayuga, May 30, '75," is likewise mentioned, and, if correct, is really a valuable note.

By far the best of these recent lists which I have seen, is that of "The Summer Birds of the Adirondacks in Franklin County, N. Y.," by Theodore Roosevelt, Jr., and H. D. Minot. Though not redundant with information, and mentioning but ninety-seven species, it bears *prima facie* evidence of reliability,—which seems to be a great desideratum in bird-lists nowadays. Based on the sound principle of exclusion, it contains only those species which the authors have themselves observed there, and consequently furnishes that which was most needed, i. e. exact and thoroughly reliable information concerning the most characteristic birds of the limited region (Franklin County) of which they treat.

For the benefit of those who have not had experience in this matter, and who may be contemplating publication, I would suggest the observance of four simple general rules, which, if adhered to, will place the authors of future "Local Lists" beyond unpleasant criticism, and save much ill-feeling.

1. Never mention a species unless you have positive proof that it has actually been killed in the region under consideration.

2. Never mention the less common species, without stating date and locality of capture, and name of collector.

3. Always give the authority for all statements which you are not personally responsible for.

4. Never trust to the identification (much less mere *opinion*) of an inexperienced collector, but make it a rule to see for yourself, and fully identify each species. If the slightest doubt remains concerning the identity of a bird, it is far better to send it at once to some acknowledged authority than run the risk of error. — C. H. M.

BARROWS'S "CATALOGUE OF THE ALCIDÆ." — Of the twenty-one species of *Alcidæ* recognized by Mr. Barrows,\* nine appear to be unrepresented in the Society's collection; of the remaining twelve short original descriptions are given, sufficiently detailed for the easy recognition of the species. Mr. Barrows does not think the family can be subdivided into groups of a higher than generic value. The true affinities of the species he believes can only be determined by a thorough study of their embryological development. The character of this paper indicates that in Mr. Barrows we have a valuable accession to our corps of ornithological students. — J. A. A.

FEILDEN'S "LIST OF BIRDS OBSERVED IN SMITH SOUND," etc.† — In this list Captain Feilden, R. A., enumerates twenty-four species observed by the recent British Arctic Expedition "in Smith Sound and northward, between the seventy-eighth and eighty-third degrees of north latitude," all of which are well-known Arctic forms. The land birds are *Falco canadensis*, *Nyctea scandiaca*, *Plectrophenes nivalis*, *Corvus corax*, and *Lagopus rupestris*. The waders embrace *Streptopelia interpres*, *Ægialitis hiaticula*, *Culidris arenaria*, *Phalaropus fulicaria*, and *Tringa canuta*. The swimming birds include *Sterna macrura*, *Pagophila eburnea*, *Rissa tridactyla*, *Larus glaucus*, *Stercorarius longicaudatus*, *Procellaria glacialis*, *Uria grylle*, *Mergulus alle*, *Alca brunnichii*, *Colymbus (septentrionalis ?)*, *Harelda glacialis*, *Somateria mollissima*, *S. spectabilis*, and *Bernicla brenta*. Most of them were repeatedly met with at different localities, some of them in considerable numbers, and many were observed breeding. The quite detailed notes respecting the species of this list render it a paper of unusual interest. — J. A. A.

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\* Catalogue of the Alcidæ contained in Museum of the Boston Society of Natural History, with a review and proposed classification of the Family. By W. B. Barrows. Proc. Boston Soc. Nat. Hist., Vol. XIX, pp. 150 – 165, November, 1877.

† List of Birds observed in Smith Sound, and in the Polar Basin during the Arctic Expedition of 1875 – 76. By H. W. Feilden. Ibis, Fourth Series, Vol. I, pp. 401 – 412, October, 1877.

ON THE MOULT OF THE BILL AND PALPEBRAL ORNAMENTS IN *FRATERCULA ARCTICA*.\*—The remarkable changes which the bill and eyelids of the Common Puffin undergo after the breeding season have been hitherto unknown. The author's exposition of the matter reveals a phenomenon as yet unparalleled among birds. Temminck acknowledged (*Man. Orn.* 2d ed. ii, 932) his inability to describe the various conditions of this common bird, and the efforts of subsequent naturalists to supply the required information have been unavailing. The Puffin is a bird which must be studied alive. Discovering that two islands off Brittany, one in the Channel and the other at sea, harbored hundreds of these birds during the breeding season, the author found the material for his investigations.

In the spring, when the birds come to breed on these islands, they are all alike in plumage and ornamentation: the cheeks are grayish-white; the bill is high and thick opposite the nostrils; there is a boss or bead (*ourlet*, a "hem") along the base of the upper mandible; the gonys is

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\* De la Mue du Bec et des Ornéments Palpébraux du Macareux arctique, *Fratercula arctica* (Lin.) Steph. après la saison des amours. Par le Docteur Louis Bureau. Extrait du Bulletin de la Société zoologique de France, 1877. 8vo. Paris, 1878. pp. 1–21, pll. IV, V.

The translator presents this remarkable and most important paper nearly entire, though with the utmost condensation in language, to bring it within limits. As reviewer, he need only witness the care and fidelity with which Dr. Bureau's investigations were evidently conducted, and the clearness with which the novel results are brought out. The paper is illustrated with several figures on two plates, one of them colored and furnished with movable pieces gummed on, on raising which both the process of the moult and its results are seen at a glance. How much we learn—how little we know! Here is a bird that *sheds part of its bill*, and we only just now find it out, though the bird has been "known" for ages. The author's happy experience should provoke new inquiry into the various curious North Pacific species, some of which may yield up similar secrets. "*Sagmatorrhina lathamii*," the "Saddle-billed Auk" was made a new genus of, though now known to be nothing more or less than *Lunda cirrhata*. The remarkable case of *Ceratorhina "suckleyi,"* = *C. nonoccrata*, now seems less singular, though we do not yet know the details; perhaps the "horn" may be moulted. *Ptychorhamphus aleuticus* has a wrinkled membrane at base of the bill, which may be something different at other times. *Simorhynchus cristellus*, as known to us in full dress, has a curious horny formation at the angle of the mouth, wanting in the so-called *S. "dubius"* and *S. "tetraculus."* *Simorhynchus microceros* has a curious knob or earuncle on the base of the culmen, not seen in the so-called *S. "pusillus."* M. Bureau's discovery puts the family in an entirely new light. Besides its special application, it has, what the author might have signalized, an interesting bearing on the homology of feathers with other epidermal productions; we may now speak of the "moulting" of the horny covering of the beak, as well as of the feathers. —

TRANSLATOR.

regularly convex ; the eyelids are vermilion red, and furnished with two horny plates, and there is a large yellow rosette at the angle of the mouth. The young are reared by the middle of July, and by the end of this month, or early in August, the birds go to sea ; after which not one is to be seen on the rocks so lately full of life. Autumn advances ; the Puffins are scattered over the waters, and a blank in their history ensues. But soon the wintry winds grow violent, and after some storm, hundreds of Puffins are washed ashore, dead or dying of inanition. These victims are mainly young birds ; but adults share the same fate if the storm occurs during the moult, when the loss of the quills reduces the wings to mere stumps. Three times in the winter of 1873, after storms, M. Marmottan found thousands of dead Puffins rolling in the sand. Willughby and Baillou have recorded similar observations. The Puffins which are thus washed on the French coast in winter are emaciated to the last degree, and are different in plumage from those we kill in the breeding season. The orbital region is more or less blackish ; there is no red ring round the eyes, nor horny plates on the lids, nor rosette at the angle of the mouth. Still more curiously *the bill itself is differently formed* ; it has neither the same size nor shape nor color ; the horny covering even is not the same. The bill is small, without any boss at the base, and furnished opposite the nostrils with a soft grayish skin instead of a solid and bluish horny plate. Authors considered such Puffins as the *young*, until M. Vian, recognizing adults among them, described them as a new species, *Mormon grabæ* (Bull. de la Soc. Zool. de France, 1<sup>re</sup> année, 1876, p. 4). Neither one nor the other of these conclusions is admissible. The first supposition, of immaturity, falls before the facts the author presents ; in view of which, Vian himself has abandoned his position.

The author devotes a couple of pages to the steps of the investigation by which he was led to discover the metamorphosis he had already suspected, being at length rewarded with actual witness of the transformation. He continues : The covering of the bill of these birds, which in spring forms a solid homogeneous horny sheath, *loosened and fell apart like the pieces of a coat of mail*; the rosette at the angle of the mouth shrivelled and grew pale ; the horny plates about the eye had fallen in some specimens and were loosened in others ; the red feet became yellow ; and finally the change of plumage began in some specimens. In a word, the adult *Larventauscher* \* grew under his eyes into what some have considered as the young of *Mormon arctica*, and into what has been called *M. grabæ*.

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\* Brehm (Handb. der Naturg. Vög. Deutschl.) once calls the Puffin *Larventauscher*, elsewhere invariably writing *Larventauscher*. If the first orthography is correct, we may conclude that the moult of the bill was known to the fishermen of the Baltic long before M. Bureau discovered it. For *der Larventauscher* is, in effect, *der Vogel der seine Larve tauscht*, *l'oiseau qui change son masque*, *the bird that unmasks*. As to *der Larventauscher*, it properly signifies *der Tau-*

To get an idea of these remarkable changes (which the author illustrates as already described) it is first necessary to understand the composition of the bill in the adult in spring and in winter. *Fratercula arctica*, adult, in spring has the bill high at the base, with the under outline regularly curved from base to tip. The bill is divided into two very distinct parts : one posterior, which is moulted ; the other anterior, and persistent.

1. The *hind part* is made up of a set of nine sutured horny pieces which come apart and fall off after the breeding season. Those of the upper mandible are : (1) the horny basal boss, 2) the nasal buckler, (3, 4) the two (one on each side) subnasal lamellæ, (5, 6) the two (one on each side) transparent lamellæ, which cover the hind part of the first ridge ; and of the under mandible, (7, 8) the two (one on each side) horny selvages (corresponding to the boss on the upper mandible), and (9) the mental buckler.

2. The *fore part*, which is persistent, shows three ridges and three grooves, designated, from base to tip, as the first or great ridge, the second or middle ridge, the third or lesser ridge ; the first or great groove, the second or middle groove, the third or lesser groove ; the bill ending with a smooth space, forming a triangle with curvilinear base, and termed the point of the bill.

At the angle of the mouth a thickened skin, folded and scalloped, forms a large orange-yellow rosette. The ornaments of the eyelids consist of a thick vermilion-red edge, and two dark gray horny appendages, the upper one triangular, the lower elongate.

Let us now see what the appearance is in winter, or after the breeding season. The aspect is entirely different. The bill is smaller, as if cut away at the forehead, especially the under mandible, the outline of which is broken instead of forming a regular curve. We still find the two well-distinguished parts already indicated in the breeding adult ; the fore part is intact, but the hind part is strangely modified *by loss of the nine horny pieces*. It has lost its thickness and its firm texture ; it is covered with a thick skin, which presents on the upper mandible (1) *the membranous boss* ; (2) *the nasal membrane* ; and on the lower mandible (3) *the membranous selva*, and (4) *the mental matrix*. The commissural rosette is reduced to a narrow pale yellow band. The eyelids are uncolored, and have lost the horny appendages.

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*cher mit einer Larve versehen, le Plongeon à masque, the masked Diver*, — a very suitable name, though any German reader will perceive that its composition is not very happy. It is therefore not impossible that the true vernacular name was the first ; though ornithologists, not understanding the allusion to the change of the “mask,” would see in the final-*tausch*er nothing but the German name of Diver, *Taucher*. If *der Larventauscher, Changeur de masque, Unmasker*, is the real name of *Fratercula arctica*, it might be well restored, as none could possibly be more appropriate or expressive.



Understanding then the conformation of the bill, both in the breeding season and in the winter, it remains to show how the change is effected. The bird acquires its full breeding array in three ways : (1) by hypertrophy, (2) by horny growths, (3) by coloration ; and, conversely, loses it in three ways, (1) by atrophy, (2) by loss of the horny growths, (3) by decoloration.

The transformations of the bill relate exclusively, as already said, to the hinder part. A. UPPER MANDIBLE : 1. The *horny boss* is that forked piece which surrounds the base of the upper mandible. It is perforated with many little holes in regular oblique series, through which rudimentary *perforating feathers* pass out. In May, at the height of the breeding season, it is translucent, of a sort of flesh-color difficult to describe, more or less tinged with yellow or violet, rather variable in shade in different specimens. In falling off it loses this coloration, and becomes horn-yellow, like any claw about to be shed. It generally comes off whole, but may break apart at the top, or towards the middle of either of its forks. Its fall leaves exposed the *membranous boss*, in which the perforating feathers are implanted, and which, the following season, reproduces a new horny boss. 2. The *nasal buckler*, situated in front of the horny boss, is forked like the last, and saddled on the upper mandible, having two broad triangular sides united. It falls off in three pieces, — one large and two small. The two little pieces (one on each side) called the *subnasal lamellæ* are always detached first ; the large saddle-shaped piece follows ; but it is so fragile that it is generally broken near the top before it finally falls off. The author, however, succeeded in securing one nasal buckler intact, this "*précieuse pièce cornée*" coming from a wounded Puffin held by the wings, who clawed it off in trying to defend himself. The nasal buckler has the effect of causing a hard horny protuberance of the nasal region, and thus thickening the base of the bill. Its loss uncovers the *nasal membrane*, which in winter shrinks away from the forehead, and the following spring produces a new buckler. 3. The pre-nasal fissure establishes the separation between the nasal buckler and the first or great ridge ; in winter it is wanting, being replaced by the corresponding temporary groove. 4. The *transparent lamella* is a horny pellicle of a beautiful orange-color, which covers the hinder part of the first or great ridge, and is so closely blended therewith as to be only distinguished in spring by its coloration. This lamella grows transparent when about to fall, and is detached by exfoliation, exposing the first or great ridge, which is entirely red in winter. 5. *Ridges and grooves*. These are subject to no other changes than those resulting from simple desquamation and partial decoloration. B. LOWER MANDIBLE. Its transformations are still more curious and noteworthy. 1. The *horny selvage* is of the brightest orange in the breeding season. Its fall exposes the *membranous selvage*, which, yellow at first, soon loses its coloration. 2. The *mental buckler* represents both the nasal buckler and the transparent lamella. It comes off whole, its two sides joined

below. The fall of this large piece exposes the *mental matrix*, and a membranous triangular space, susceptible of being retracted or drawn in. This is the Triangle of atrophy (*le Triangle atrophique*) to which special attention should be paid.

The strangest change is certainly that produced in the *depth* and *shape* of the lower mandible. In the adult, in spring, the base of the lower mandible is produced (downward and backward), and the outline of the gonys is a regular curve. In winter the base is narrowed or constricted, and the lower border forms two straight lines meeting at an angle. It looks as if the lower corner of the bill had been *chopped off*; and the way this comes about is as follows: Loss of the mental buckler exposes the yellowish membranous "triangle of atrophy," which gradually shrinks, and is withdrawn into the fossa formed by the slight divergence of the forks of lower jaw (i. e. into the interramal space). In some specimens the process of retraction is not accomplished at once; for after the loss of the mental buckler, the atrophic triangle is often covered with a delicate horny pellicle which exfoliates and soon falls. This disappearing triangle can only be studied on the living subject; and ornithologists should be on their guard lest they fall into error in examining specimens in course of transformation, either after complete drying or before the secondary and final exfoliation just mentioned. In default of examination of the living subject a good idea may be gained by getting a specimen in full breeding array, with a bill so thin as to be translucent at this part. In a very favorable specimen in the author's possession examined by transmitted light, the bony part of the jaw formed the shadow, the atrophic space the penumbra, while the horny tip was translucent. It is supposed that such specimens might easily be secured in April or early May, before the horny pieces are fully developed. Another good way, open to any one, is to remove the horny sheath of the mandible by prolonged maceration; when the atrophic part, thus uncovered and softened, is seen in its normal condition. The horny sheath of either mandible *will come off whole* by maceration,—the separation of the several pieces of which it is composed being a vital process only accomplished at the time of the moult.

The commissural rosette, in spring a thick naked rugous skin of a beautiful orange-color, afterwards wastes away and turns pale. The transformations of the parts about the eye seem very simple after what has gone before. The red border of the lids shrinks and loses color. The horny protuberances fall off, leaving a naked skin which rapidly shrinks and disappears.

The author concludes this remarkable paper with some pertinent and suggestive observations on other species of *Fratercula*, and on *Lunda cirrhata*. — ELLIOTT COUES, *Washington*, March 15, 1878.

## General Notes.

HABITS OF THE KINGFISHER (*Ceryle alcyon*). — The following observations are communicated by Mrs. Mary Treat, Green Cove Spring, Florida : "A Kingfisher whose feeding-ground is just in front of my windows fishes from a private wharf, where he is seldom disturbed, and has become so tame that he pursues his avocations without concern, though I may be standing within a few feet of him. I learned that he ejects from the mouth the bones, scales, or other indigestible portions of his food, just like a bird of prey. When the water is so rough that it is difficult for him to procure fish, instead of seeking some sequestered pool he remains at his usual post, occasionally making an ineffectual effort to secure his customary prey, until, nearly starved, he resorts to a sour-gum tree (*Nyssa aquatica*, L.) in the vicinity, and greedily devours the berries. Returning to his post, he soon ejects a pellet of the large seeds and skins of the fruit. I have saved some of these pellets, as well as those composed of fish-bones and scales." The remains of fish which are found in the bird's breeding-holes, giving rise to a very general impression that the nest is constructed of these materials, are probably deposited in this way. The interesting instance of the bird's feeding on fruit brings out the relationship between the truly piscivorous species and certain exotic non-aquatic representatives of the family. — ELLIOTT COUES, *Washington, D. C.*

THE PAINTED LARK BUNTING (*Plectrophanes pictus*) IN TEXAS. — On November 23, 1876, I saw a flock of *Plectrophanes*, which I thought were different from either *P. maccowni* or *P. ornatus*, and shot one, which proved to be different. On December 20 I shot another, and on December 22 three others. One of these, being sent to Mr. Robert Ridgway, of the Smithsonian Institution, he has kindly identified it for me as *Plectrophanes pictus*, and states that this is its first record south of Illinois. They are less easily taken than *P. maccowni*, as they do not fly so compactly as does that species. Their note while on the wing is a simple chirp, while the flocks of *P. maccowni* keep up constant chatter while on the wing. Whether *P. pictus* is an accidental or a regular winter visitor to Texas, I am unable to state. They were quite plentiful here last winter (1876-77), but may have been driven farther south than usual by the uncommonly cold weather, which had driven away the Robins, Harris's Sparrow, and even *Plectrophanes ornatus*, all of which were abundant the previous winter. — G. H. RAGSDALE, *Gainesville, Texas.*

NOTES ON A FEW BIRDS OBSERVED IN NEW MEXICO AND ARIZONA IN 1876. — 1. *Turdus migratorius*. Winters abundantly in New Mexico ; a few summer in the high mountains.

2. **Mimus polyglottus**. Abundant in summer. Nesting in low bushes, grape-vines, etc.

3. **Harporhynchus crissalis**. I saw this species on the Gila in New Mexico, and in Arizona, in brushy broken localities. Not common.

4. **Sialia mexicana**. Abundant in winter. A few stay in the high mountains all summer.

5. **Sialia arctica**. Very scarce in winter. I saw not more than a dozen in the season. They frequent the low valleys.

6. **Auriparus flaviceps**. Sparingly found in summer in broken localities along the Gila in New Mexico, usually in the mouths of cañons at the edge of the river bottom. In Arizona frequents the mesquit. Nests in a low bushy tree, called there "hackberry." The nests are bulky, composed of thorny twigs on the outside, and lined with grass, with a small hole in one side. June 2 I found a nest containing four young birds able to fly; June 16, another nest containing three eggs. The eggs were green, much blotched with brown. Very young birds have the head uniform in color with the back.

7. **Dendroeca blackburniæ**. I killed a female, near Fort Bayard, N. M., in May.

8. **Vireo vicinior**. Rare. Found in rough broken localities in the bluffs bordering the Gila, keeping in the scrub oaks. They are very shy. Their song is similar to that of *V. plumbeus*, but the pauses between the notes are not as distinct.

9. **Vireo pusillus**. Common on the Gila. Nests in willow thickets, the nest being placed in a fork of a twig, usually about two feet from the ground.

10. **Hesperiphona vespertina**. Sparingly found in piny districts in New Mexico, both summer and winter.

11. **Pipilo aberti**. February 11, I saw several birds of this species in the cottonwoods on the Gila bottom near old Fort West, N. M. They were clinging to the bark of the larger trees like Nuthatches, searching for insects in the crevices. I never saw these birds away from the immediate bottom of the Gila or its larger tributaries. They usually nest in the thick willows, although I found one nest in a cottonwood-tree, thirty feet or more from the ground, concealed in a thick bunch of the mistle-toe, so common in such trees. They are abundant, but very shy at all times.

12. **Pipilo megalonyx**. Very abundant all through New Mexico and Arizona, in brushy districts.

13. **Pipilo fuscus**. Common over the same region as the last, but more partial to rocky localities.

14. **Pipilo chlorurus**. Observed on the Gila during the early spring migration.

15. **Junco oregonus**. This species, and var. *annectens*, are plenty in timber everywhere.

16. **Junco cinereus** var. **dorsalis**. Common in the high mountains. July 16, I found a nest under a tuft of grass, which contained three eggs, perfectly fresh. The eggs are, when blown, white, slightly tinged with green, speckled sparsely all over, except at the smaller end, with small brownish dots. They measure  $.58 \times .74$ ,  $.62 \times .76$ , and  $.63 \times .77$ . I took young birds of the year in the early part of July.

17. **Corvus americanus**. I saw a flock of a dozen or so on the Rio Mimbres in April, and killed one. These were the only ones I had seen since leaving Kansas, except three seen in South Park in October, 1873, one of which I killed.

18. **Myiarchus crinitus**. I killed a male in the cottonwoods along the Gila, New Mexico, June 12.

19. **Scops asio** var. **maccalli**. On April 19 I heard a screaming noise proceeding from a Woodpecker's hole in a pine. I climbed the tree, and pulled out a female McCall's Owl, and immediately after a male Sparrow-Hawk flew out. The Owl was apparently breeding, but the hole contained no eggs.

20. **Cyrtonyx massena**. April 14 I nearly stepped on a pair of Massenas, in a trail. I stopped, and was hesitating whether to put my hat over them or step back and shoot them, when they settled the matter by flying away, both my barrels missing fire. May 12, as I was riding through the timber, I heard a Partridge fly up behind the horse. Looking back, I saw that it was a female Massena. I stopped the horse, and, without getting off, looked for the mate, and saw it lying flat in the grass within eight inches of the track of the horse's hind foot. The female will not lie as close as the male, but both lie so close that it is only by accident that they are ever seen.— F. STEVENS.

CAPTURE OF *ÆGIALITIS MELODA* VAR. *CIRCUMCINCTA*, RIDG., ON LONG ISLAND.— While collecting April 30, 1873, on the outer beach, near Rockaway, Long Island, I shot several specimens of the Piping Plover. One, an adult male, had the pectoral band complete across the jugulum, a peculiarity I could not discover in any others. The band is unusually broad, curving anteriorly somewhat, and is slightly enlarged in the middle toward the throat, giving it the outline of a top of a shield, whereas in those specimens which have the markings on the neck *nearly* meeting, the lines converge to a point in an hour-glass shape. The dimensions are,  $6.77 \times 14.25 \times 4.65$ ; tail, 2.10; bill, .55; tarsus, .90, male adult, agreeing in the main with Mr. Ridgway's type (breeding plumage, male adult, July 8, Loup Fork of the Platte, Am. Nat., VIII, 1874, 109) excepting length, which he gives as  $6\frac{1}{2}$  inches, which is much below the average. The same day I shot a female with just a faint line of dusky uniting the dark patches of the neck, formed by the edgings only of two or three feathers, all the way across. I doubt whether this should be regarded as the female of var. *circumcincta*, however.— C. H. EAGLE.



NEST AND EGGS OF SELASPHORUS PLATYCERCUS. — The following interesting observations are communicated by Mr. Edwin A. Barber, of West Chester, Pa. : "While stationed in the extreme southwestern corner of Colorado, near the head-waters of the Rio la Plata, with a branch of the United States Geological Survey, during the summer of 1875, I was so fortunate as to observe large numbers of the Broad-tailed Humming-Bird. Our party was encamped on a small spring-rill, along the banks of which a thick hedge of dwarf willows had sprung up, and through and over this thicket these little birds were darting and chattering all day long. On July 26 I searched the bushes for nests, and in a couple of hours I discovered five, each containing two diminutive white eggs. Mr. W. H. Holmes found two more. I contented myself with securing two sets, picking out those which represented extremes of form. Both nests were composed of vegetable cotton and thistle-down, and were covered externally with lichens and bark-fibre, so that in color they resembled the twigs to which they were attached. The color and form of the two nests, however, differed materially,—one was broad, shallow, with thick walls, and of a brown color; while the second was narrow, elevated, and of a light yellowish hue. Each of the nests was built not more than three to five feet above the ground, and not one of them was fastened to the main trunk or larger limbs of the shrubs, like the nests of our Ruby-throat. On the contrary, they were all suspended by slender swaying twigs, often directly over the flowing water. One was attached to a little piece of curled bark, which presented a horizontal resting-place, just large enough for the nest. The eggs are not distinguishable from those of *Trochilus colubris*, except that, in some instances, the former may be a trifle larger than the latter. The fact that the nests were found containing eggs in the latter part of July would indicate that two broods of young are raised during the season. All of my specimens of eggs had been laid for the space of about a week, as the embryos were all advanced to about the same stage of development, and I had great difficulty in blowing them. I believe there is no other case on record where the eggs of this species have been found in such numbers within a limited space." — ELLIOTT COUES, *Washington, D. C.*

NESTING OF VIREO OLIVACEUS. — Mr. W. L. Collins, of Frankford, Philadelphia, Pa., writes : "Whilst walking in a grove I found a nest of this species, upon which the female was sitting, although the framework was barely completed. Watching awhile, I presently saw the male fly to the nest with some soft substance in his bill, which he gave to his mate to arrange on the nest while he went in search of more. On then looking into the nest, I was surprised to find that it contained three eggs. Three or four days afterward, I again visited the spot, and found that the structure had been completed in the interval. Thus the female had begun to lay some time before the nest was ready for the reception of eggs." — ELLIOTT COUES, *Washington, D. C.*

CALIFORNIAN PRAIRIE CHICKENS. — It is always safest for naturalists to *salt down* newspaper extracts on scientific subjects, and usually best to leave them permanently in pickle, as the proverbial "grain of salt" is rarely sufficient to correct their bad savor. The severe attempts to cater to the marvelling tastes of their readers lead editors of newspapers to corrupt the foundation of facts on which stories sometimes rest, until we scarcely know whether they have any real foundation. Thus, as quoted in the "Naturalist," for February, p. 124, the "Salinas Index" of California tries to make out that the Prairie Chicken has followed the Central Pacific Railroad-track from Nebraska west to Winnemucca, and from there striking "off the track," reached Surprise and Shasta valleys, California. I can scarcely believe that Dr. Coues or any well-posted ornithologist should let such a blunder go uncorrected, but as it is, it needs only a few references to set it right.

In Vol. VI of Pacific R. R. Reports, p. 94, Dr. Newberry, in 1857, wrote that he found *Tetrao phasianellus* from Canoe Creek, fifty miles north-east of Fort Reading, Cal., more and more abundant toward the northeast into Oregon. It was, indeed, from its abundance in the Upper Columbia River country, that Ord, as long ago as 1815, named it *T. columbianus*, now retained as the name of this variety as compared with the true *T. phasianellus* of British America, both being chiefly Western birds, though extending east to Wisconsin, perhaps to Illinois, where they are confounded with the more eastern Prairie Chicken.

All this was clearly set forth in the latest work on Californian Ornithology, published in 1870, and even the southern limit near lat 39° in Nevada indicated.\*

If the species had any tendency to spread in California with the increase of agriculture, it has now had more than twenty years to do so, but from the account quoted does not seem to have made much if any progress. Attempts to naturalize it just north of San Francisco Bay have been made, but though it may succeed there, the climate of most other parts of California does not appear well suited to it. — J. G. COOPER, M. D., *Haywood, Cal.*

REPORT OF THE SECOND CAPTURE OF THE ORANGE-CROWNED WARBLER (*Helminthophaga celata*) IN NEW HAMPSHIRE. — Mr. Edward G. Gardiner, of Boston, informs me that a specimen of this rare Warbler was taken at the Isles of Shoals, September 9, 1877, by two young collectors, Messrs. Outram and Edward A. Bangs. The bird was a female, and was in company with a small flock, supposed to be of the same species, though no more were captured. Three specimens of this bird have been recorded

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\* Ridgway, in Bull. Essex Inst. 1874, gives only "Upper Humboldt Valley," near lat. 41°, but it was found near Salt Lake City, by Nelson, in 1872.

from Massachusetts and one from New Hampshire.\* — JOHN MURDOCH, *Roxbury, Mass.*

ROBINS' EGGS, SPOTTED. — My friend, Mr. Oliver Lockhart, of Lake George, early in June, found a Robin (*Turdus migratorius*) building in a pine-tree near his house. When the nest was completed, and the bird had laid her eggs, he was surprised to find them spotted. One, which he kindly sent me, was marked very much like a Scarlet Tanager's (*Pyrranga rubra*) egg, the greater number of spots being at the larger end; the rest of it was sparingly spotted; otherwise it was a normal Robin's egg. — A. K. FISHER, *Sing Sing, N. Y.*

SOME NEW TRAITS FOR THE RED-HEADED WOODPECKER (*Melanerpes erythrocephalus*). — A remarkable instance of foresight in several birds of this species in "looking out for a rainy day ahead" has been communicated to me by my friend Mr. G. S. Agersborg of Vermilion, Dakota Ter., and I cannot do better than quote extracts from his letter: "I have forgotten to mention to you an interesting fact about *Melanerpes erythrocephalus*. Last spring in opening a good many birds of this species with the object of ascertaining their principal food, I found in their stomachs nothing but young grasshoppers. One of them, which had its headquarters near my house, was observed making frequent visits to an old oak post, and on examining it I found a large crack where the Woodpecker had inserted about one hundred grasshoppers of all sizes (for future use, as later observations proved), which were put in without killing them, but they were so firmly wedged in the crack that they in vain tried to get free. I told this to a couple of farmers, and found that they had also seen the same thing, and showed me the posts which were used for the same purpose. Later in the season the Woodpecker, whose station was near my house, commenced to use his stores, and to-day (February 10) there are only a few shrivelled-up grasshoppers left. I have now not seen this bird for over two weeks."

A similar habit is related of the California Woodpecker (*Melanerpes formicivorus*) by Dr. Heermann in California, and Mr. J. K. Lord in British Columbia; the food in this instance being acorns, which were wedged tightly in crevices, and in some cases the hollow stems of reeds were used.† — H. B. BAILEY, *New York City.*

SPURIOUS PRIMARIES IN THE RED-EYED VIREO. — On September 3, 1877, at Bar Harbor, Me., I shot a Red-eyed Vireo (*Vireo olivaceus*) which is curiously abnormal in having well-developed spurious first pri-

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\* See note by William Brewster, with references, Bulletin of the Nutt. Orn. Club, Vol. I, No. 4, p. 94.

† See Baird, Brewer, and Ridgway, History of Birds of North America, Vol. II, pp. 568, 569.

maries, which measure 1.16 inches in length, the wing measuring 3.15 inches. Through the kindness of Mr. J. A. Allen, I have examined the Vireos of this species in the collection of the Museum of Comparative Zoölogy, and find in a series of about seventy specimens four more cases of the same variation. They are as follows : No. 23,281 (Coll. M. C. Z., from Coalburg, W. Va.) with spurious primaries on both wings measuring 1.17 inches (wing, 3.23) ; No. 23,274 (Coll. M. C. Z., same locality), with a spurious primary only on the left wing, measuring 1.10 inches (wing, 2.92) ; No. 4285 (Coll. M. C. Z., from Newtonville, Mass.), with spurious primaries on both wings, measuring 1.09 inches (wing, 3.02) ; and No. 4793 (Coll. M. C. Z., same locality) with a spurious primary on the left wing, measuring 1.15 inches, the wing measuring 3.21. It may be well to say that they are not the first primary coverts, but are true spurious primaries, lying in the same plane as the other primaries, and differing from the spurious primaries of other species of this family only in being somewhat smaller. This variation seems particularly interesting from the fact that the presence or absence of a spurious primary has been to some extent taken as a basis of classification in this family. — CHARLES F. BATCHELDER, *Cambridge, Mass.*

THE EUROPEAN WIDGEON (*Mareca penelope*) IN THE UNITED STATES. — I take great pleasure in noting the capture on the Atlantic coast of the United States of two specimens of *Mareca penelope*, which I am assured have not been recorded.

One is in the collection of Mr. Geo. N. Lawrence, who has kindly given me the facts concerning its capture, as far as known ; the other in my own. The first, which is a fine adult male, Mr. Lawrence said he procured from a gunner who captured it on the coast of Virginia, in 1855. My specimen, an immature male, I procured in Fulton Market, N. Y., January 6, 1873, and as far as I could ascertain, it came from Southampton, L. I. — N. T. LAWRENCE, *New York.*

THE SHARP-TAILED FINCH (*Ammodramus caudacutus*) IN MAINE. — Dr. Brewer strangely misquotes me on page 48 of the present volume of the "Bulletin," in reference to the Sharp-tailed Finch (*Ammodramus caudacutus*). In my note to which he refers, no mention is made of the capture of a "single" specimen in Scarboro', Me., nor indeed of the capture of any specimen at all. What I did say (see Bulletin, Vol. II, p. 27) was that I had found the species a rare inhabitant of a part of Scarboro' Marsh.

Late in October, 1876, I observed a few individuals of this species on Pine Point, — a sandy strip of land which forms the seaward extremity of the great Scarboro' Marshes. Aside from the fact that this was considerably to the east of their previously known range, I was surprised to find them here, for I had carefully examined the Point and its vicinity, at other seasons of the year, without detecting a single specimen. Accord-

ingly, during the season of 1877, I made the Sharp-tailed Finch the object of almost daily expeditions, from early spring until late autumn; but, in confirmation of my suspicions, not a bird was to be found until about October 1. At that date great numbers appeared on the marshes and sea beaches adjacent to Pine Point, and for a couple of weeks they fairly swarmed in their favorite haunts. They were noticeably less numerous during the latter part of the month, and by November 1, only stragglers remained. I captured the last of the season on November 15.

To the best of my knowledge, then, although abundant during the autumnal migration, the Sharp-tailed Finch is not to be found in this vicinity during the spring and summer months. — NATHAN CLIFFORD BROWN, *Portland, Me.*

THE WHITE-THROATED WARBLER (*Helminthophaga leucobronchialis*) IN CONNECTICUT. — Through the kindness of Mr. Charles M. Carpenter of Providence, R. I., I have lately had the pleasure of examining a specimen of this recently described Warbler, which was shot by that gentleman at Wauregan, Conn., May 25, 1875. The locality was a wild hillside covered with scrub-oaks and a sprinkling of young pines. Mr. Carpenter's attention was first drawn to its presence by its song, which at the time he mistook for that of the Golden-winged Warbler (*H. chrysoptera*), though he thinks that it differed in being somewhat higher and shriller. The sex of this bird was not determined by dissection, but it is unquestionably a male. It agrees closely in every particular with my type of the species, as does also Mr. Wood's specimen, which I have likewise seen at Philadelphia. Indeed, it would be difficult to select three individuals of any species which vary so little *inter se*. The olive-green wash which is spread over the upper parts, with the exception of the nape, where an area of unmixed bluish-ash forms a narrow collar, is a marked feature in all three specimens, though the silky white of throat, cheeks, and lower eyelids, with the narrow restricted black line through the eye, may be regarded as the most salient points. The validity of this distinctly characterized species must now be regarded as established, but further facts relating to its habits and distribution remain to be elicited by future investigation. — WILLIAM BREWSTER, *Cambridge, Mass.*

THE OCCURRENCE OF MYIARCHUS CRINITUS VAR. ERYTHROCERCUS, SCLAT., AT FORT BROWN, TEXAS.\* — This bird appears to be a rather abundant summer visitor in the vicinity of Fort Brown, and during the last two summers I have taken specimens at intervals from April 1 until the latter part of September. It bears a close resemblance to var. *crinitus*,

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\* In justice to the author it should be stated that this note was received for publication December 5, 1877, and was unavoidably omitted from the January number. Compare Bull. U. S. Geol. and Geogr. Survey of the Terr., Vol. IV, No. 1 (Feb. 5, 1878), p. 33, fifth paragraph. — Eds.



and I was not aware of its being a distinct variety for a considerable time. I cannot at present say certainly whether var. *crinitus* breeds here, but am inclined to think that it occurs only in the spring and autumn.

A set of eggs, identified by the capture of one of the parents, was taken on the 10th of May, 1877. The nest was placed in the end of a broken branch of an anacahuite tree, about ten feet from the ground; it was made of locks of wool and hairs, and contained five eggs slightly advanced. These measure  $.94 \times .69$ . Besides this identified nest two others were found, but, thinking at the time that they were of true *crinitus*, I did not shoot the parents. Of these, one was taken, May 14, in an old excavation of *Centurus aurifrons*, and contained three fresh eggs. They are larger than those of the first set ( $1.01 \times 0.70$ ), the ground-color darker, and the markings heavier. The third nest was in a hollow stump less than two feet from the ground, and on June 4 contained six young.

It is worthy of note that no snake-skins were used in the construction of these nests. — J. C. MERRILL, M. D., *Assistant Surgeon, U. S. A., Fort Brown, Texas.*

[I have carefully compared the two sets of the eggs of *M. erythrocerus*, here referred to, with sets of *M. crinitus*, *M. cinerascens*, *M. cooperi*, and *M. stolidus*. These all have a strong family resemblance, those of the *erythrocerus* being distinguishable by larger size and much greater abundance of large confluent blotches of lilac and purplish brown. The eggs described in *North American Birds* (Vol. II, p. 339) as those of *M. cinerascens* undoubtedly are really eggs of this species. — T. M. BREWER.]

THE GOLDEN EAGLE IN THE HUDSON HIGHLANDS. — This splendid bird, which was formerly quite characteristic of this wild mountainous region, is now becoming quite scarce. It was formerly known to nest upon the cliffs on the west side of the Hudson, north of West Point; and it is still a problem whether at least one pair do not still breed there.

I have never been able to discover any nest, though I have carefully examined each of the three principal ledges lying between West Point and Cornwall; but these cliffs are so vast and inaccessible, that it is impossible to examine them satisfactorily from either top or bottom, even with the aid of a good glass. As I have seldom undertaken these fatiguing excursions during their breeding season, I have not ascertained the fact of their presence there at that season; but in winter I have occasionally seen a single individual flying near the top of the mountains.

Several years ago, a Golden Eagle was shot opposite those cliffs by a farmer at Cold Spring, while in the act of destroying a goose belonging to the farmer.

A few days since, through the kindness of my friends, Professor Robert Donald and Mr. Sanford R. Knapp, of Peekskill, I examined a finely mounted specimen of this Eagle, in the possession of the latter gentleman. It was in the plumage of the young male (the basal two-thirds of the tail

being white), and measured seventy-eight inches in expanse. It was shot by a farmer three miles east of Peekskill, on the 16th of November, 1877. A third specimen was taken in the Palisades of the Lower Hudson in October, 1875. This was a fine adult specimen. The sportsman who shot it said that "he saw it in a tree over his head, and killed it with a charge of No. 9 shot."

I have seen this Eagle on several occasions, but never in summer. In March, 1876, two Golden Eagles were found in a certain spot in Putnam County for several weeks, but I did not succeed in shooting them. In April, 1872, I saw one twice, whose tail was all white, save a narrow terminal bar of black.

An aged hunter, Mr. William LeForge, positively asserts that Eagles nest upon the cliffs north of West Point. In support of this statement, he related to me, in substance, the following circumstance: A few years ago, (about ten?) on the occasion of the death of an old man, who lived the life of a hermit, near the summit of a mountain between "Cro's Nest" and "Storm King," the remains had to be carried down to the foot of the mountain to the river. On their way down the company (conducted by LeForge) halted at the foot of a ledge, where their attention was attracted to the "hissing" of some young Eagles on the rocks above them. — EDGAR A. MEARNS, *Highland Falls, N. Y.*

MEANING OF THE WORD "ANHINGA." — Correspondence of interest respecting etymologies of ornithological names with W. C. Avery, of Contentment, Ala., elicits the following derivation and meaning of the strange-looking word "Anhinga," as applied to the Snake-birds (species of *Plotus*).

"Thinking it probably Spanish, I sought it in Leone's Dictionary, where I found, not *Anhinga*, but *Anhina*, 'an aquatic bird of prey in Brazil, called the Darter, *Plotus*.' *Anhina* is undoubtedly the Spanish or Portuguese word; but how has it been corrupted into *Anhinga*? In a French Encyclopædia I find the following: '*Anhinga*, nom brésilien de ces oiseaux. . . . La longueur démesurée de leur cou, jointe à sa minceur, leur donne une figure étrange . . . on dirait des canards qui ont pour cou un long serpent.' Hence the name 'Snake-bird,' Portuguese *Anhina*, from the Latin *Anguina*? (*Anguis*, a snake)." This derivation seems to be undoubtedly correct, *Anhinga* being corrupted from *Anhina*. — ELLIOTT COUES, *Washington, D. C.*

LATE CAPTURE OF THE YELLOW-BELLIED FLYCATCHER IN MASSACHUSETTS. — Mr. W. B. Barrows informs me that on November 29, 1876, he took a male *Empidonax flaviventris*, at Reading, Mass. The day was so cold that ice was forming rapidly in the shade; yet the bird had the same motions which characterize it in June, and though it had an empty stomach, was very fat and apparently in the best of spirits. It was, however, silent so far as was observed. I also learn from Mr. H. A. Purdie

that a specimen of this species was taken by Mr. W. W. Eager in Newton, Mass., December 1, 1876. These are certainly late dates for the capture of any species of the genus *Empidonax* in Massachusetts. — J. A. ALLEN, *Cambridge, Mass.*

THE IPSWICH SPARROW (*Passerculus princeps*) ON LONG ISLAND, N. Y., — On the 1st of January, 1878, I took a fine specimen of the *Passerculus princeps* at Rockaway, Long Island. The bird when taken was in company with Savanna and Tree Sparrows (*Passerculus savanna* and *Spizella monticola*), and was found among a low range of sandhills that skirt the main shore of the bay at Far Rockaway. Another was observed the same day, but, being very wild, I was unable to procure it. This makes the fifth specimen that has been taken in the same locality: the first in December, 1870, the second and third in November and December, 1872, the fourth, November, 1874, and the fifth, January, 1878. — N. T. LAWRENCE, *New York City.*

THE STILT SANDPIPER (*Micropalama himantopus*) AT PORTLAND, MAINE. — Mr. H. A. Purdie, in his review of a recent "Catalogue of the Birds of New England," stated (this Bulletin, Vol. I, p. 73) that *Micropalama himantopus* is migratory along the whole New England coast. This elicited the rather sweeping assertion from the author of the Catalogue that the bird had "not been found in any part of that coast from St. Andrews to Kittery" (Bull., Vol. II, p. 48). I desire to contribute my evidence in support of Mr. Purdie's statement. *M. himantopus* has been repeatedly taken on the marshes and sandbars in the vicinity of Portland, Me., during the early part of autumn. — NATHAN CLIFFORD BROWN, *Portland, Me.*

NESTING-HABITS OF *PARUS MONTANUS*. \* — The nest was built at the bottom of a seam in a very rotten stump. The top of the seam was two feet from the ground, the bottom about a foot below the entrance. The bird had slightly and irregularly enlarged the passage to the nest, which was composed of fibrous roots, lined with wool gathered from the bushes where sheep had grazed, and contained seven white eggs. †

I visited the nest daily for some time, and finally found the female sitting. As I neared the stump I was somewhat startled by a loud hissing noise, and looked in at the nest expecting to find a snake, but discovered only the owner, who, with wings outspread, mouth open, and eyes glistening, hissed almost continually. I desired to see the nest, and tried to drive her from it by violently striking the stump, but she was not to be dislodged so easily, and I left her, hoping to find her not at home next

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\* Communicated by R. Ridgway.

† It would be interesting to know whether the eggs are spotted or not; if unspotted, they form a notable exception to the rule in this genus. — R. R.

morning. Upon my next visit, the day after, she greeted me again with hisses and other demonstrations of anger ; and after watching her several minutes, during which time she kept up her attitude of defiance, I again left her mistress of the situation. The next morning she saluted me as before, but being by this time determined to examine the nest I inserted a stick, at which she advanced, pecking and hissing vigorously. She fought long and well, but might finally prevailed, and she slipped out, as she could have done at any time if so inclined, and flew to a neighboring tree, from which she watched me with much interest and indignation. She returned to her nest soon after I had left it. After the rough treatment of this occasion, she would invariably leave the nest at my approach, doubtless hearing my footsteps, as she could not possibly see me.

Some days after this, I found a pair of these birds building in a low stump which stood in a meadow, but I did not remain in the neighborhood long enough to learn the number of eggs or test the courage of the female while incubating. — L. BELDING, *Marysville, Cal.*

PERSISTENCY IN NEST-BUILDING BY A PAIR OF CITY ROBINS.—MR. H. H. Clark of this city has kindly placed at my disposal some very interesting observations made by him last season relative to the perseverance displayed by a pair of Robins (*Turdus migratorius*) at nest-making under difficulties. A pair of these birds selected for a nesting-site a place in his garden so frequented by cats—the great enemy of town-breeding birds—that it seemed certain the young, if not, indeed, the mother-bird, would be destroyed by them if the birds were allowed to build in the place they had chosen. So, in order to avoid the threatened danger to the brood, as well as the pain of witnessing their destruction, Mr. Clark resolved to intercept their work, hoping thereby to force them to choose a safer nesting-place. He accordingly pulled down their partly formed nest. The next morning there was a great outcry from the birds over their loss, and no little commotion among the other Robins of the neighborhood. To his surprise the birds immediately set to work to rebuild the nest, aided by several of their sympathizing neighbors, who brought materials faster than the architect seemed able to properly bestow them, so that in a single morning considerable progress was made with the new structure. The next morning the birds found their nest had been again destroyed. Not a whit discouraged, they resumed their labors, building again in the same spot as before, but this time without help. The nest was now constructed with greater care, being securely fastened by strings passed round the branch on which it rested, which were also carried up and made fast to a limb above. These precautions availed them nothing, for this nest shared the fate of the others. An act begun in a spirit of kindness toward the birds was now continued in the interest of scientific investigation. A fourth time the persistent birds rebuilt their nest at the same spot, with to them

the same sad result. For the fifth time they began to rebuild the nest ; this was too much for my informant's feelings to resist, and he resolved to let them carry out their plans. To his surprise, however, they soon began to destroy the structure themselves, taking the materials to a branch higher up, as if divining not only the source of their troubles, but the reason that had prompted the repeated removal of their nest ; but after a morning's work the nest was abandoned, and another site for it was selected some rods away in a safer position. Here again, however, they later came to grief, their eggs being taken by a ruthless boy, an habitual robber of bird's-nests.

The interesting points here brought out are the tenacity with which this pair of Robins adhered to their chosen nesting-place ; the concerted action of their sympathizing neighbors in aiding them at first to rebuild ; the later greater care they displayed in more firmly attaching the nest to its resting-place ; and finally the apparently intelligent recognition of the source and cause of their troubles, and voluntary choice of a safer location. — J. A. ALLEN, *Cambridge, Mass.*

DEADLY COMBAT BETWEEN AN ALBINO ROBIN AND A MOLE. — The following interesting and curious incident is quoted from a letter received by me from Miss Maria R. Audubon, granddaughter of the celebrated naturalist, dated Newark, N. J., February 4, 1878. — RUTHVEN DEANE.

"We have had a Robin of the albino type which for two years has built its nest in the same tree, and devoured an immense number of worms from the lawn around the house. It became quite tame, and we naturally felt a sort of ownership in it. One morning I saw something moving or jumping on the ground just under the tree, and on investigation it proved to be the Robin engaged in deadly combat with a mole. I tried to drive the Robin away, and found the mole had it firmly held by the wing. I set it free, and poked the mole off with a stick to some distance. . . .

The Robin flew to a branch of the tree, did not seem much hurt, plumed itself, and finally disappeared among the foliage ; the mole, too, made off in an unknown direction. I could find no reason for this unusual battle ; no corpses of young Robins could be seen to make feasible the suggestion that a fledgling had fallen from the nest and been attacked by the mole, thereby bringing down the wrath of the parent bird ; we knew the mole had not climbed the tree, and we had never heard of a Robin eating a mole.

"Neither party was seen again that day till towards evening, when the Robin was again on the lawn as usual. The next morning I passed the tree about the same hour as on the previous day, and there lay the mole and the Robin, 'beautiful in death,' to use a poetic license, for they really looked very unpleasant. Their bodies were not cold ; the Robin very much ruffled as to plumage and bloody about the throat and under the right wing ; the mole with his glossy coat 'all the wrong way,' and severely pecked about the head and throat. There was no life in either after I found them."



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THE EAVE, CLIFF, OR CRESCENT SWALLOW (*PETROCHELIDON LUNIFRONS*). \*

BY DR. ELLIOTT COUES, U. S. A.

DISCOVERY of this notable Swallow, commonly attributed to Say, was made long before Long's expedition to the Rocky Mountains, though the species was first named in the book which treats of that interesting journey. The bird may have been discovered by the celebrated John Reinhold Forster ; at any rate, the earliest note I have in hand respecting the Cliff Swallow is Forster's, dating 1772, when this naturalist published in the *Philosophical Transactions* "An Account of the Birds sent from Hudson's Bay ; with Observations relative to their Natural History ; and Latin Descriptions of some of the most Uncommon," — a rather noted paper, in which seven new species, viz., *Falco spadiceus*, *Strix nebulosa*, *Emberiza* [i. e. *Zonotrichia*] *leucophrys*, *Fringilla* [i. e. *Junco*] *hudsonias*, *Muscicapa* [i. e. *Dendroica*] *striata*, *Parus hudsonicus*, and *Scolopax* [i. e. *Numenius*] *borealis*, are described, with references to various other new birds by number, such as "*Turdus* No. 22," which is *Scolecophagus ferrugineus*, and "*Hirundo* No. 35," which is *Petrochelidon lunifrons*. The next observer — in fact, a rediscoverer — was, perhaps, Audubon, who says that he saw Republican or Cliff Swallows for the first time in 1815 at Henderson, on the Ohio ; that he drew up a description at the time, naming the species *Hirundo republicana* [sic] ; and that he again saw the same bird in 1819 at Newport, Ky., where they usually appeared about the 10th of

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\* By permission, from advance sheets of the "Birds of the Colorado Valley," Vol. I.

April, and had that year finished about fifty nests by the 20th of the same month. The next year, namely, 1820, Major Long and Sir John Franklin found these birds again, in widely remote regions, — the first named during his expedition to the Rocky Mountains, and the latter on the journey from Cumberland House to Fort Enterprise, and on the banks of Point Lake, in latitude 65°, where its earliest arrival was noted the following year on the 12th of June. Dr. Richardson says that their clustered nests are of frequent occurrence on the faces of cliffs of the Barren Grounds, and not uncommon throughout the course of the Slave and Mackenzie's Rivers; and that their first appearance at Fort Chipewyan was on the 25th of June, 1825. Major Long's discovery was named *Hirundo lunifrons* by Say in 1823; and the following year Audubon published his hitherto MS. name *respublicana* in the Annals of the New York Lyceum of Natural History, with some remarks on the species, in connection with some observations of Governor De Witt Clinton, who called the bird *Hirundo opifex*. Meanwhile, Vieillot had described the West Indian conspecies as *Hirundo fulva*; and the future Prince Bonaparte adopted this name for our species in 1825. Thus in the short space of two years, 1823 – 25, the interesting Anonyma, "No. 35," before known only by number, like the striped inmates of some of our penal establishments, suddenly became quite a lion, with titles galore in the binomial *haut ton*. But it was not till 1850 that it was actually raised to the sublime degree of *Petrochelidon*, though it had long been taken and held to be a master-mason.

The Cliff Swallow has been supposed by some to be an immigrant of comparatively recent date in the Eastern United States; but it does not appear that any broad theory of a general progressive eastward extension is fairly deducible from the evidence we possess. On the contrary, much of the testimony is merely indicative of the dates, when, in various parts of the country, the birds began to build under eaves, and so established colonies where none existed before; and some of the evidence opposes the view just mentioned. The Swallows, as a rule, are birds of local distribution in the breeding season, notwithstanding their pre-eminent migratory abilities; they tend to settle in particular places, and return year after year; and nothing is better known than that one town may be full of Swallows of several kinds unknown in another town hard by. I suppose the real meaning of the record is "only this and nothing

more." Nevertheless, these accounts are interesting, and all have their bearing on the natural history of this remarkable bird. It was unknown to Wilson. In 1817, between Audubon's times of observation in Kentucky, Clinton says he first saw Eave Swallows at Whitehall, New York, at the southern end of Lake Champlain. Zadock Thompson found them at Randolph, Vt., about the same time. Mr. G. A. Boardman tells me that they were no novelty at St. Stephens, New Brunswick, in 1828. Dr. Brewer received their eggs from Coventry, Vt., in 1837, when they were new to him; but the date of their appearance there was not determined. They are said by the same writer to have appeared at Jaffrey, N. H., in 1838; at Carlisle, Pa., in 1841; and the appearance of a large colony which he observed at Attleborough, Mass., in 1842, indicated that they had been there for several years. During the last-mentioned year they were present, apparently for the first time, in Boston and neighboring metastatic foci of the globe. The record also teaches that these birds do not necessarily change from "Cliff" to "Eave" Swallows in the East, for in 1861 Professor Verrill discovered a large colony breeding on limestone cliffs of Anticosti, remote from man, and in their primitive fashion. That the settlement of the country has conduced to the general dispersion of the birds during the breeding season in places that knew him not before, is undoubted; but that any general eastward migration ever occurred, or that there has been in recent times a progressive spread of the birds across successive meridians, is less than doubtful,—is almost disproven. Birds that can fly like Swallows, and go from South America to the Arctic Ocean, are not likely to cut around *via* the Mississippi or the Rocky Mountains, houses or no houses. Moreover, the scarcity or apparent absence of these birds in the Southern States, or most portions thereof, may be simply due to the ineligibility of the country, and only true for a part of the year. It cannot be that the breeding birds of Pennsylvania, New York, and New England come and go by other than a direct route; and if not detected in the Southern States, it must be because they fly over the country in their migrations, and do not stop to breed. It is authenticated that they nest at least as far south as Washington, D. C., where Drs. Coues and Prentiss found them some twenty years ago to be summer residents, arriving late in April and remaining until the middle of September, though they were not as abundant as some of the other swallows.

It may be remembered in this connection that a happy conjunction of circumstances is required to satisfy these birds. Not only are cliffs or their substitutes necessary, but these must be situated where clayey mud, possessing some degree of adhesiveness and plasticity, can be procured. The indication is met at large in the West, along unnumbered streams, where the birds most do congregate; and their very general dispersion in the West, as compared with their rather sporadic distribution in the East, is thus readily explained. The great veins of the West, — the Missouri, the Columbia, and the Colorado, — and most of their venous tributaries, returning the humors from the clouds to their home in the sea, are supplied in profusion with animated congregations of the Swallows, often vastly more extensive than those gatherings of the feathered Sons of Temperance beneath our eaves, where the sign of the order — a bottle, neck downward — is set for our edification.

All are familiar, doubtless, with the architecture of these masons; if any be not, the books will remove their ignorance. But there are many interesting details, perhaps insufficiently elucidated in our standard treatises. It is generally understood that the most perfect nest, that is, a nest fully finished and furnished with a neck, resembling a decanter tilted over, — that such a “bottle-nosed” or “retort-shaped” nest is the typical one, indicating the primitive fashion of building. But I am by no means satisfied of this. Remembering that the Swallows are all natural hole-breeders, we may infer that their early order of architecture was a wall, rampart, or breastwork, which defended and, perhaps, enlarged a natural cavity on the face of a cliff. Traces of such work are still evident enough in those frequent instances in which they take a hole in a wall, such as one left by a missing brick, and cover it in, either with a regular domed vestibule or a mere cup-like rim of mud. It was probably not until they had served a long apprenticeship that they acquired the sufficient skill to stick a nest against a perfectly smooth, vertical support. Some kind of domed nest was still requisite, to carry out the idea of hole-breeding, a trait so thoroughly ingrained in Hirundine nature, and implying perfect covering for the eggs; and the indication is fully met in one of the very commonest forms of nest, namely, a hemispherical affair, quite a “breastwork” in fact, with a hole at the most protuberant part, or just below it. The running on of a neck to the nest, as seen in those nests we consider the most elaborate, seems to merely represent a surplusage of

building energy, like that which induces a House Wren, for example, to accumulate a preposterous quantity of trash in its cubby-holes. Such architecture reminds me of the Irishman's notion of how cannon are made, — by taking a hole and pouring the melted metal around it. It is the rule, when the nest is built in any exposed situation. But since the Swallows have taken to building under eaves, or other projections affording a degree of shelter, the bottle-necked, even the simply globular nests seem to be going out of fashion ; and thousands of nests are now built as open as those of the Barn Swallow, being simply half-cups attached to the wall, and in fact chiefly distinguished from those of Barn Swallows by containing little or no hay. I suppose this to be a piece of atavism,—a reversion to primitive ways. The Barn and Eave Swallows are our only kinds that do not *go into a hole* or its equivalent ; and the indication of shelter or covering, in all cases indispensable, being secured by the roof itself beneath which they nestle, the special roofing of each nest becomes superfluous. Hence the open cups these Swallows now construct.

Considering how sedulously most birds strive to hide their nests, and screen themselves during incubation, it becomes a matter of curious speculation why these Swallows should ever build beneath our eaves, in the most conspicuous manner, and literally fly in the face of danger. Richardson comments on this singular and excessive confidence in man, too often betrayed, and which cannot, on the whole, be conducive to the best interests of their tribe. He speaks of a colony that persisted in nesting just over a frequented promenade, where they had actually to graze people's heads in passing to and from their nests, and were exposed to the curiosity and depredations of the children ; yet they stuck to their first choice, even though there were equally eligible and far safer locations just at hand. Sir John wonders what cause could have thus suddenly called into action such confidence in the human race, and queries what peculiarity of economy leads some birds to put their offspring in the most exposed situation they can find. We have all seen the same thing, and noted the pertinacity with which these and other Swallows will cling to their caprices, though subjected to every annoyance, and repeatedly ejected from the premises by destruction of their nests. I have two notable cases in mind. At Fort Pembina, Dakota, a colony insisted on building beneath the low portico of the soldiers' barracks, almost within arm's reach. Being noisy



and untidy, they were voted a nuisance, to be abated ; but it was “no use” ; they stuck, and so did their nests. In the adjoining British province of Manitoba, at one of the trading-posts I visited, it was the same thing over again ; their nests were repeatedly demolished, on account of the racket and clutter they made, till the irate lord of the manor found it cheaper in the end to let the birds alone, and take his chances of the morning nap. I think such obstinacy is due to the bird’s reluctance to give up the much-needed shelter which the eaves provide against the weather, — indeed, this may have had something to do with the change of habit in the beginning. The Cliff Swallow’s nest is built entirely of mud, which, when sun-baked into “adobe,” is secure enough in dry weather, but liable to be loosened or washed away during a storm. In fact, this accident is of continual occurrence, just as it is in the cases of the Chimney-Swifts. The birds’ instinct, — whatever that may mean ; I despise the word as a label of our ignorance and conceit, — say, rather, their reason, teaches them to come in out of the rain. This may also have something to do with the *clustering* of nests, commonly observed when the birds build on the faces of cliffs ; for obviously such a mass would withstand the weather better than a single edifice.

It is pleasant to watch the establishment and progress of a colony of these birds. Suddenly they appear, — quite animated and enthusiastic, but undecided as yet ; an impromptu debating society on the fly, with a good deal of sawing the air to accomplish before final resolutions are passed. The plot thickens ; some Swallows are seen clinging to the slightest inequalities beneath the eaves, others are couriers to and from the nearest mud-puddle ; others again alight like feathers by the water’s side, and all are in a twitter of excitement. Watching closely these curious sons and daughters of Israel at their ingenious trade of making bricks, we may chance to see a circle of them gathered around the margin of the pool, insecurely balanced on their tiny feet, tilting their tails and ducking their heads to pick up little “gobs” of mud. These are rolled round in their mouths till tempered, and made like a quid into globular form, with a curious working of their jaws ; then off go the birds, and stick the pellet against the wall, as carefully as ever a sailor, about to spin a yarn, deposited his chew on the mantel-piece. The birds work indefatigably ; they are busy as bees, and a steady stream flows back and forth for several hours a day, with intervals for rest

and refreshment, when the Swallows swarm about promiscuously a fly-catching. In an incredibly short time the basement of the nest is laid, and the whole form becomes clearly outlined ; the mud dries quickly, and there is a standing-place. This is soon occupied by one of the pair, probably the female, who now stays at home to welcome her mate with redoubled cries of joy and ecstatic quivering of the wings, as he brings fresh pellets, which the pair in the closest consultation dispose to their entire satisfaction. In three or four days, perhaps, the deed is done ; the house is built, and nothing remains but to furnish it. The poultry-yard is visited, and laid under contribution of feathers ; hay, leaves, rags, paper, string — Swallows are not very particular — may be added ; and then the female does the rest of the “furnishing” by her own particular self. Not impossibly, just at this period, a man comes with a pole, and demolishes the whole affair ; or the *enfant terrible* of the premises appears, and removes the eggs to enrich his sanded tray of like treasures ; or a tom-cat reaches for his supper. But more probably matters are so propitious that in due season the nest decants a full brood of Swallows, — and I wish that nothing more harmful ever came out of the bottle.

Seeing how these birds work the mud in their mouths, some have supposed that the nests are agglutinated, to some extent at least, by the saliva of the birds. It is far from an unreasonable idea, — the Chimney-Swift sticks her bits of twigs together, and glues the frail cup to the wall with viscid saliva ; and some of the Old World Swifts build nests of gummy spittle, which cakes on drying, not unlike gelatine. Undoubtedly some saliva is mingled with the natural moisture of the mud ; but the readiness with which these Swallows' nests crumble on drying shows that saliva enters slightly into their composition, — practically not at all, — and that this fluid possesses no special viscosity. Much more probably, the moisture of the birds' mouths helps to soften and temper the pellets, rather than to agglutinate the dried edifice itself.

In various parts of the West, especially along the Missouri and the Colorado, where I have never failed to find clustering nests of the Cliff Swallow, I have occasionally witnessed some curious associates of these birds. In some of the navigable cañons of the Colorado I have seen the bulky nests of the Great Blue Heron on flat ledges of rock, the faces of which were stuccoed with Swallow-nests. How these frolicsome creatures must have swarmed around the

sedate and imperturbable Herodias, when she folded up her legs and closed her eyes, and went off into the dreamland of incubation, undisturbed in a very Babel! Again, I have found a colony of Swallows in what would seem to be a very dangerous neighborhood, — all about the nest of a Falcon, no other than the valiant and merciless *Falco polyagrus*, on the very minarets and buttresses of whose awe-inspiring castle, on the scowling face of a precipice, a colony of Swallows was established in apparent security. The big birds seemed to be very comfortable ogres, with whom the multitude of hop-o'-my-thumbs had evidently some sort of understanding, perhaps like that which the Purple Grackles may be supposed to have with the Fish-Hawks when they set up housekeeping in the cellar of King Pandion's palace. If it had only been a Fish-Hawk in this case instead of *Falco polyagrus*, we could understand such amicable relations better, — for Cliff Swallows are cousins of Purple Martins, and, if half we hear be true, Progne was Pandion's daughter.

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## NEST AND EGGS OF THE BLUE CROW (*GYMNOKITTA CYANOCEPHALA*).

BY H. W. HENSHAW.

THE Blue Crow, or Maximilian's Jay, is one of the most notable and characteristic of the birds inhabiting the Interior Region, to which it is very closely confined, and of the limits of which its presence may be accepted as an almost certain indication. Notwithstanding the fact that upon the Pacific slope are found in greatest abundance the same trees from which the bird derives the main part of its subsistence, the yellow pine, piñon, and juniper, it shuns the west side of the Sierras, and occurs only within the limits of the great interior basin and upon the eastern slope of the Rocky Mountains. As its powers of flight are most ample, it is within this area confined to no special limits of locality. By the Mexicans it is called the Piñonario or Piñon Bird, and most appropriately is it named; for, wherever within the limits assigned this tree is found, there, at any season of the year, but especially in fall,

may the presence of this bird be confidently expected. Although having no liking for the heavy coniferous forests, it being the very rare exception to find the species therein, it yet shares with the Clarke's Crow a fondness for the seeds of the yellow pine, and in winter, the supply of piñon nuts failing, and where the country is but sparsely timbered, it will often be found plundering these trees of their nutritious seeds.

Finally, juniper berries may be mentioned as making the third most important item of fare. But doubtless during a bad year any of the smaller seeds are acceptable, and perhaps berries do not come amiss. Certainly I have more than once seen these Jays massing into flocks on the ground and feeding greedily upon grass seeds, and others report a similar experience.

To none of our species can the term "resident" be applied with more exactness than to the present bird. Although its roving disposition is perfectly apparent at all seasons, and although, except during the limited period of parental duties, its excursions are constant and wide, yet in no part of its wide range does it appear to be migratory, as the term is correctly understood. I have never myself found it living among the high mountains, and believe this is contrary to its more usual habits. But in Arizona, according to Dr. Coues, it is so found, and there, as he suggests, it doubtless does migrate to the extent of forsaking them in winter for the more congenial lower districts. Usually, however, no change of habitat with varying season takes place, and, wherever it occurs in summer, it is also to be seen in winter; although the ever-restless bands cover in their journeyings a radius of many miles, being seen here to-day, to-morrow there, according as their tastes suggest a change of diet, or as mere caprice may urge. Thus they may often appear to have migrated from a district which in reality they have left only to return to in a few days. Its gregarious disposition is one of its most marked and constant traits, and has been recorded by all who have ever seen the species in the field. This close association of many individuals appears to persist throughout the year, as well during the breeding as at other seasons.

Although so common and, in many respects, so well known a bird, the acquaintance of most of its many observers has ceased with the beginning of the nesting period, and it has been only within a comparatively short time that any information of its habits at this season has reached us. Mr. Ridgway was the first to supply any exact

facts; but his experience was limited to the discovery of the nests and young, which he found fully fledged as early as April 21. This was in 1868, and the eggs remained undescribed till 1875, when Mr. Aiken secured a nest with its complement in Colorado.

For additional information concerning the nests and eggs of this curious bird we are indebted to the zeal of Mr. H. G. Parker of Carson City, Nev., who during the past spring has visited a breeding colony on the same range of low piñon-covered hills where nine years ago Mr. Ridgway obtained his facts respecting their nests. This is a locality perfectly typical of the tastes of the bird, and here they have maintained their hold for an indefinite term of years, and reared many successive generations of young. Mr. Parker visited the locality during the latter part of March, and found the pairs then leisurely at work making their nests. On the 5th of April he found the females sitting, and took two nests, one with three, the other with four eggs. One of the nests with its complement, presented by Mr. Parker to the Smithsonian Institution, is now before me, and offers the following description: To begin with, it is a really handsome structure, and indicates a higher order of constructive ability than is usual in the Jay family. It is strongly made, and though somewhat bulky and Jay-like externally, is more compact and deeper, with higher sides than is ordinarily seen. As a matter of course, the piñon-tree being almost the only living thing found on these dry and desolate hills, the nest is made up largely of twigs from this tree, which were evidently, as shown by the fresh ends, broken off by the birds, not gathered from the ground. These are interlocked firmly, so as to afford an admirable supporting base for the nest proper. Here again the birds have had recourse to the piñon, and have utilized long strips of the tough, fibrous, but soft bark which make up the bulk of the lining. Fine shreds of the same and a few straws nicely arranged complete the interior. The external diameter of the nest is nine and one half inches; internal, four; depth, three. The eggs are of a greenish-white color, profusely spotted everywhere with small blotches of light brown and purple. In one specimen the brown shows a faint reddish tinge. Towards the larger ends the markings become more numerous, and near the apex show a decided tendency, so usual in spotted eggs, to form a confluent ring. They measure  $1.27 \times .87$ ,  $1.27 \times .88$ ,  $1.27 \times .87$ ,  $1.23 \times .87$ . They thus appear to correspond very closely with Mr. Aiken's set, and show only slight variations in size. They



hardly need comparison with the eggs of any other of the Jays, having a much purer white ground-color and a very different style of spotting.

The nest above described was found on the horizontal branch of a nut-pine, toward the top, but only nine or ten feet from the ground. Both our other observers' accounts indicate a similar position for the nests, and it is probable that very little variation in this respect is to be looked for.

Later Mr. Parker writes that he has since found a second colony in another portion of the same range of hills, where "thousands" breed. Unfortunately he was too late for the eggs.

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## DESCRIPTIONS OF THE FIRST PLUMAGE IN VARIOUS SPECIES OF NORTH AMERICAN BIRDS.

BY WILLIAM BREWSTER.

### . III.\*

#### 48. *Vireo olivaceus.*

*First plumage*: male. Remiges, rectrices, and greater wing-coverts as in adult; rest of upper surface, including the lesser wing-coverts and rump, light cinnamon, tinged with ashy, and upon the interscapular region washed faintly with dull green; cheeks pale buff. Supra-orbital line and entire under parts silky white, with a delicate wash of pale brown on the sides. From a specimen in my collection taken at Upton, Me., July 30, 1874.

#### 49. *Vireo gilvus.*

*Autumnal plumage*: young female. Crown precisely as in spring adult; interscapular region much more strongly tinged with olive-green. Primaries and secondaries tipped with ashy-white. Anal and abdominal regions silky-white. Rest of under parts creamy-buff, lightest on throat and crissum, most pronounced on the pectoral region, and intensifying into rich, though dull, brownish-yellow on the sides. From a specimen in my collection, shot at Concord, Mass., September 12, 1877.

#### 50. *Vireo flavifrons.*

*First plumage*: male. Remiges and rectrices similar to those of the adults, but with the primaries and secondaries tipped and edged broadly

with white. Rest of upper parts uniformly blue-gray, tinged with cinnamon. Throat, cheeks, and pectoral region anteriorly, very pale yellow. Rest of under parts silky-white. From a specimen in my collection obtained at Cambridge, Mass., June 30, 1871.

#### 51. *Vireo solitarius*.

*First plumage* : female. Upper parts dark ashy, becoming lighter on the rump, and washed strongly with olive-green on the interscapular region. Abdominal region and throat soiled white, the latter with a faint ashy tinge. Sides and crissum pale greenish-yellow. A V-shaped patch of fawn-color on the lower pectoral region. From a specimen in my collection shot at Upton, Me., August 23, 1873.

This bird is in transitional dress, being slightly past the first plumage.

#### 52. *Vireo noveboracensis*.

*First plumage* : female. Entire upper parts brownish-olive ; wing-bands pale fulvous. Throat, cheeks, and breast fulvous-ash. Central portions of abdominal and anal regions soiled white. Sides and crissum pale yellow, tinged with buff. Otherwise similar to the adult. From a specimen in my collection obtained at Cambridge, Mass., July 20, 1871.

#### 53. *Pinicola enucleator*.

*First plumage* : male. Forehead, crown, cheeks, and throat dull yellowish-brown, lightest on the throat, with a few blood-red feathers intermixed on the forehead and cheeks. A dusky line through the lores. Occiput and interscapular region purplish olive-brown ; nape a lighter shade of the same color ; tail-coverts and rump dull yellowish-red ; wing-bands and edging of secondaries light wood-brown ; entire under parts reddish-brown, lightest on abdomen, most pronounced on breast and sides. From a specimen in my collection shot at Upton, Me., August 27, 1874.

Young birds in the second or autumnal plumage exhibit almost endless variations of coloring. The males may be distinguished in most cases by the coppery-red on the crown and rump ; but some females have the ordinary brownish-yellow on those parts, strongly tinged with red. One young male in my collection exhibits a broad pectoral band of light rose-color mixed with reddish-yellow.

#### 54. *Carpodacus purpureus*.

*First plumage* : female. Above dark brown, shading to lighter on the rump, each feather edged with light reddish-brown. The forehead and supra-loral line streaked with grayish. Under parts dull white, thickly streaked everywhere, except on crissum and anal region, with very dark brown. From a specimen in my collection taken at Cambridge, July 9, 1873. Although this bird is in strictly first plumage, it differs scarcely appreciably in coloring from autumnal specimens.

**55. *Loxia leucoptera*.**

A male and female of this species, received from Mr. J. G. Rich, and shot by him at Upton, Me., some time in April, differ widely in coloring from any specimens which I have previously examined. The male is very brilliant *carmine*, nowhere streaked or obscured except on the sides, abdomen, and forehead. The wings, tail, and scapulars are very clear glossy-black ; the white wing-bands unusually broad and clearly defined. The female is similarly marked, with pale orange replacing the carmine of the male. The rump and breast exhibit large areas of the purest orange, which, however, is scarcely less pronounced on the back and crown, although there somewhat obscured by a dusky pencilling. Whether these specimens represent some regular seasonal phase of plumage, or are simply aberrant types, I am unable to decide. Both are apparently adult birds.

**56. *Loxia curvirostra americana*.**

*First plumage* : female. Upper surface generally brown, each feather edged and tipped with dull gray. Interscapular region washed with greenish-olive ; rump yellowish-white, with a greenish tinge ; a few only of the feathers with darker centres. Beneath dull ash, lighter on the abdomen, washed with greenish across the breast, each feather with a central streak of dark brown. From a specimen in my collection obtained at Upton, Me., June 25, 1873. In general aspect this specimen is much darker than the adult female. It was moulting, and had acquired a few feathers of the autumnal plumage.

**57. *Chrysomitris pinus*.**

*First plumage* : female. Strong *mustard-yellow*, tinged on the upper parts with brownish-olive, every feather, excepting those on the abdomen, streaked with dark brown. Wing-bands and outer edging of secondaries fulvous. From a specimen in my collection, shot at Upton, Me., August 18, 1873. The first plumage of this species is certainly most remarkable. The yellow is by no means a mere wash or tinge of color, but pure, strong, and uniformly distributed. In a series of five or six specimens collected at about the same time, several exhibit a brownish cast, especially on the upper parts, while scarcely any two agree as to the relative amount and color of the dusky streaks. In one example they are very broad and almost black, in another, tear-shaped and of a dull brown.

**58. *Chrysomitris tristis*.**

*First plumage* : male. Crown, interscapular region, and rump light reddish-brown, tinged with olive. Wing-bands and a broad edging upon the secondaries intense fawn-color. Forehead and entire under parts fulvous-yellow, most prominent on the sides. From a specimen in my collection, shot at Upton, Me., August 29, 1873.

**59. Plectrophanes ornatus.**

*First plumage*: female. Above light reddish-brown, every feather streaked centrally with very dark brown, most heavily so upon the crown. Greater and middle wing-coverts pale ashy, tinged with reddish. Lores and superciliary stripes dull gray, the latter minutely dotted with brown. Under parts pale fulvous, streaked somewhat finely with brown upon the breast and jugulum, with a maxillary series of spots of the same color. From a specimen in my cabinet, collected by Dr. Coues, September 3, 1873, at Souris River, Dakota.

**60. Passerculus savanna.**

*First plumage*: male. Above light brownish cream-color, streaked thickly and finely on the top of the head and nape, more broadly on the back, with dark brown. Beneath dull white, strongly tinged anteriorly with brownish-yellow, finely streaked everywhere excepting upon the abdominal and anal regions with dull black. Wings paler than in adult, with the greater and middle coverts tipped with fulvous. From a specimen in my collection, shot at Upton, Maine, August 11, 1873.

**61. Coturniculus henslowi.**

*First plumage*. Top of head, neck, upper parts of back and rump, olivaceous brown; crown with a broad black-spotted stripe on each side. Feathers of interscapular region with heavy central spots of dull black. Beneath pure delicate straw-color, lightest on the abdomen, deepest, with a strong buffy tinge, on the throat, breast, and sides; *no spots or markings of any kind on the under parts*. Outer edging of primaries and secondaries dull cinnamon; wing-coverts buff. Lores and spot upon the auriculars dusky. Bill colored like that of the adult. From two specimens in my cabinet, collected at Concord, Mass., June 19, 1878. With the single exception of *Chrysomitris tristis*, this is the only species of the *Fringillidæ*, so far as I am aware, in which the young in first plumage are entirely immaculate beneath.

*Autumnal plumage*: young female. Bill black. Crown, cheeks, and superciliary line, anteriorly, reddish-buff. A narrow maxillary and inframaxillary stripe and a small spot behind the auriculars, black. Top of head with two broad stripes of dark brown upon the sides. Post-orbital space, neck, nape, and back anteriorly dull olive-green, the nape dotted finely with dusky. Tertiaries, upper tail-coverts, and feathers of interscapular region with broad, rounded, central spots of black, shading round their edges into dark chestnut, and tipped narrowly with ashy-white. Outer surface of wing similar to the adults, but paler. Under parts pale reddish-buff, fading into soiled white upon the abdomen. A broad continuous band of black spots across the breast, extending down the sides to the crissum. Throat flecked faintly but thickly with dusky. Chin, jugulum, and central abdominal and anal regions unspotted. From a specimen in

my cabinet, collected at Osterville, Mass., November 6, 1874. In the absence of sufficient material for comparison, I am unable to say whether this specimen represents the typical autumnal plumage or not. The black bill is, to say the least, a remarkable feature, and one not found in either the adult or young in first plumage.

**62. *Coturniculus passerinus*.**

*First plumage:* male. Upper surface, including sides of neck, dark brown, each feather edged and tipped with pale fulvous,—no chestnut marking. Sides of head ochraceous, spotted finely with dusky. Superciliary line pale buff. Greater and middle wing-coverts dull white. Beneath dull white (in some specimens with a decided yellowish cast). Sides with a few dusky streaks. A broad continuous band of ovate black spots across the breast and jugulum, running upward in a narrowing line to the base of the lower mandible. Several specimens in my cabinet, collected at Nantucket, Mass., in July, 1874. This species in the first plumage may be at once separated from *C. henslowi* in the corresponding stage by the conspicuous band of spots upon the breast, and by the darker and more uniform coloring of the upper parts.

**63. *Ammodromus maritimus*.**

*First plumage.* Above light olive-brown, with dusky streakings, broadest upon the interscapular region, narrower and more uniformly distributed upon the occiput and nape. A broad superciliary stripe of fulvous extending backward to the occiput, finely spotted with dusky upon its posterior half. Sides of head dull olive, with irregular patches of fulvous. Wing-bands of pale fulvous upon the greater and middle coverts. Beneath pale brownish-yellow, fading to soiled white posteriorly. Sides, and a broad continuous band across the breast, spotted with dull brown. From a specimen in my collection, taken at Bath, Long Island, September, 1872.

**64. *Ammodromus caudacutus*.**

*First plumage:* male. General coloring, both above and beneath, bright reddish-brown, nearly as in the superciliary stripe of the adult. Feathers of interscapular region streaked centrally with dark brown; nape brownish-olive, unspotted. Two broad stripes of dark brown on the sides of crown. Wings and tail scarcely more reddish than in adult. Sides of head with fewer dark markings. Sides of breast somewhat thickly streaked with dusky; otherwise unmarked. From a specimen in my collection, taken at Rye Beach, N. H., August 20, 1869. It is not a little remarkable that in a family whose young are nearly without exception more thickly streaked or spotted than their parents,—and often, indeed, conspicuously marked in this manner, when the parent is entirely plain,—this bird in first plumage should exhibit less streaking beneath than the adult, which has not only a *continuous* band of dusky markings across the breast,



but also the sides thickly marked in a similar manner. In view of this fact, the further development of the young is most interesting. When the autumnal plumage is acquired, the dusky streakings upon the sides of the breast are entirely lost, and do not again appear until after the spring moult, when, as previously stated, they are distributed over much larger areas. A nearly analogous case of development is afforded by the Arctic and Wilson's Terns, whose young have the bill and feet at first pale red or yellow, afterwards dusky or nearly black, and again, when fully adult, deeper and clearer red than when first from the nest.

#### 65. *Melospiza palustris*.

*First plumage*: female. Crown blackish, each feather obscurely tipped with lighter. Rest of upper parts reddish-brown, every feather streaked centrally with dull black. Beneath dull ferruginous-brown, fading to soiled white on the abdomen, streaked thickly but narrowly with dull black everywhere excepting on the abdomen. Sides of head dusky, with irregular patches of dark brown. No appreciable ashy anywhere. From a specimen in my collection taken at Cambridge, Mass., June 24, 1872. Specimens in first plumage show considerable variation in the amount of streaking beneath. Some are so faintly marked that at a little distance they appear entirely plain. They may be at once distinguished from examples of *M. melodia* in corresponding plumage by the much darker cast of the upper surface (especially of the crown) and by the finer character of the markings beneath.

#### 66. *Melospiza melodia*.

*First plumage*: male. Above similar to the adult, but with the crown less rufous, and the markings of the feathers upon the interscapular region decidedly darker. The sides of the head are also more buffy and the markings fainter. Beneath light yellowish-brown, streaked and spotted everywhere, excepting upon the throat and abdomen, with dusky brown, of a much lighter and duller cast than in the adult. From a specimen in my collection shot at Cambridge, Mass., June 24, 1872.

#### 67. *Junco hyemalis*.

*First plumage*: male. Upper parts dark brown, everywhere suffused with ashy, but most appreciably so upon the top and sides of head; every feather marked obscurely with dull black. Greater and middle coverts tipped with reddish-brown, producing two rather indistinct wing-bands. Throat, and breast anteriorly, ferruginous-ashy, nearly obscured by streakings of dull black. Rest of under parts dull ashy-white, with a faint buffy tinge, spotted everywhere excepting on the abdomen with dusky. Crissum pale fulvous. From a specimen in my cabinet collected at Upton, Me., August 25, 1874. Considerable variation is exhibited by the series of specimens in first plumage before me. Some have the upper

parts dull reddish-brown, with the streakings but faintly indicated, and scarcely any appreciable ashy either above or beneath. The first plumage is worn by the young of this species for an unusually long time.

**68. *Spizella socialis*.**

*First plumage* : male. Above light reddish-brown, lighter and with an ashy tinge on the nape and rump, every feather streaked centrally with dark brown. Superciliary line and a poorly defined median stripe upon the crown pale fulvous. Beneath ashy-white, spotted and streaked everywhere, excepting on throat, anal region, and crissum, with dull black. From a specimen in my collection shot at Cambridge, Mass., July 9, 1873.

**69. *Spizella pusilla*.**

*First plumage* : male. Above olivaceous-ashy, the feathers of the interscapular region with central streaks of dark brownish-chestnut. Crown, occiput, and nape unmarked. Entire under parts, including sides of head, light brownish-ashy, paler posteriorly. A broad band across the breast of fine, faint, but distinct spots of reddish-brown. From a specimen in my collection taken at Belmont, Mass., July 30, 1875. Young of this species in first plumage are readily separable from those of *S. socialis* by the plain crown and finer spottings of the under parts.

**70. *Zonotrichia albicollis*.**

*First plumage* : male. Above bright reddish-brown, darkest upon the crown, the feathers of the interscapular region with obscurely defined dark brown centres. Superciliary stripe, and a poorly defined median stripe upon the crown, brownish-white ; no decided yellow anterior to the eye. Beneath brownish-white, with dusky streakings everywhere excepting upon the abdomen. From a specimen in my collection taken at Upton, Me., July 30, 1874.

**71. *Zonotrichia leucophrys*.**

*First plumage*. Throat, breast, sides, and interscapular region streaked thickly with dull black, most broadly so on the back ; on the throat these streaks are reduced to mere spots ; lateral stripes of crown dark brown ; central stripe dirty white. Anal and abdominal region immaculate. Crissum faintly spotted. Otherwise like adult. From specimen in the collection of J. Murdoch, obtained by him at Labrador, July, 1876.

**72. *Chondestes grammica*.**

*First plumage*. Crown dark brown, faintly tinged with chestnut. A median and two lateral stripes of pale brownish-yellow. Rest of upper parts similar to the adult, but with the rump obscurely spotted, and the streaking on the feathers of the interscapular region much broader. Loes

dull black. Beneath soiled white, thickly streaked everywhere, excepting upon the abdomen, with dull black. From a specimen in my collection obtained at Columbus, Ohio, by Dr. J. M. Wheaton.

### 73. *Euspiza americana.*

*First plumage.* Above pale fulvous, with broad markings of dark brown upon the feathers of the interscapular region, and narrower fainter ones of lighter brown upon the crown. Bend of wing, middle and greater coverts, fulvous. Under parts delicate fawn-color, deepest upon the breast. No markings beneath, excepting a faintly indicated line of dusky spots upon the sides of the breast. From a specimen in my cabinet collected at Columbus, Ohio, by Dr. J. M. Wheaton. This bird is very young, scarcely large enough to fly.

### 74. *Cyanospiza cyanea.*

*First plumage: female.* Above dark reddish-brown, slightly tinged with olive, a few of the feathers upon the interscapular region with very obscure dusky central markings. Beneath pale reddish-brown, deepest upon the abdominal and anal regions; streaked distinctly on the sides and across the breast with dusky brown. From a specimen in my cabinet collected at Cambridge, Mass., July 15, 1872.

### 75. *Pyrrhuloxia sinuata.*

*First plumage: male.* Above light ashy-brown, palest on crown and nape. Two rather indistinct wing-bands of fulvous ashy. Crest similar to that of adult, but of a lighter red; bill much darker than in adult. Breast and sides brownish-ash with a few scattered feathers of faint crimson on the median line of the breast and abdomen. From a specimen in my collection obtained by Dr. H. B. Butcher on the Rio Grande in Texas, August 29, 1866. This specimen was moulting, and had already acquired many feathers of the fall dress. The red feathers of the crest and under parts would probably be wanting in very young birds.

### 76. *Pipilo erythrophthalmus.*

*First plumage: male.* Above dull reddish-olive, the feathers of the interscapular region with dusky brown centres. Greater wing-coverts and outer edges of two inner tertiaries, deep fulvous. Beneath pale reddish-brown, deepest upon sides and crissum, shading into brownish-white upon the abdomen, thickly spotted and streaked everywhere (excepting on a small space upon the abdomen) with dull black. From a specimen in my collection shot in Cambridge, Mass., June 21, 1874. In a large series of young in first plumage much individual variation occurs. Some specimens are thickly and finely streaked beneath with dull chestnut in place of black, while the upper parts are dull rufous; others, taken during the progress of the first moult, exhibit nearly every conceivable variation of marking in reddish-brown, chestnut, white, and black.

77. *Molothrus ater.*

*First plumage* : female. Above olivaceous-brown, the primaries, secondaries, greater and middle coverts, and every feather upon the nape and interscapular region, edged with light sugar-brown. Superciliary line and entire under parts delicate brownish-yellow. The throat and lower area of abdomen immaculate ; everywhere else thickly streaked with purplish-drab. From a specimen in my cabinet taken at Cambridge, Mass., August 4, 1875. A male in first plumage differs in being much darker and more thickly streaked beneath. Specimens in process of change into the autumnal plumage are curiously patched and marked with the light brown of the first plumage and the darker feathers of the fall dress. *All the remiges and rectrices* are moulted with the rest of the first plumage during the first moult.

REMARKS ON SOME OF THE BIRDS OF LEWIS COUNTY,  
NORTHERN NEW YORK.

BY C. HART MERRIAM.

*(Continued from p. 56.)*

***Melanerpes erythrocephalus.*** RED-HEADED WOODPECKER. — This handsome bird, the most beautiful, to my eye, of all our Woodpeckers, may be regarded as a common resident in Lewis County ; for since my earliest recollection — and the bird has always been a favorite with me — it has been plentiful throughout the entire year, excepting only during those winters which followed unusually small yields of beechnuts.

Like the Yellow-bellied and Golden-winged Woodpeckers, and to a certain extent the Red-bellied also, it is generally considered a truly migratory species wherever it occurs at all (in the Eastern Province) north of the Southern States. In 1862 Dr. Coues gave it as a “summer resident” in the District of Columbia, stating that it “arrives in spring usually the last week in April ; leaves about the middle of September.”\* Turnbull says (1869) that in East Pennsylvania and New Jersey it is “plentiful, arriving in the latter part of April, and departing in September or beginning of October.”† Again, in 1868, Coues gives it as a “rare summer visitant”‡ to New England, and De Kay tells us (1843) that it “arrives in

\* List of Birds ascertained to inhabit the District of Columbia. By Elliott Coues and D. Webster Prentiss. From Smithsonian Report for 1861, 1862, p. 403.

† Birds of East Pennsylvania and New Jersey. By William P. Turnbull, LL. D. Glasgow (Cuts), p. 15, 1869.

‡ Proceed. Essex Inst., Vol. V, p. 263, 1868.

this State from the South in the early part of May, and, after breeding, leaves us again in September ; occasionally a few remain during the winter." \* Hence it is not to be wondered at that when, during the winter of 1871 - 72, I mentioned to one of our leading ornithologists the fact of their wintering with us in Northern New York, my statement was received with surprise and, as I thought, no little incredulity. I therefore wrote to my friend, Mr. C. L. Bagg, asking him to send me a lot of Red-headed Woodpeckers as soon as possible, and in a week's time received a box containing over twenty specimens,—all killed in Lewis County and when the snow was three feet deep ! This was proof positive. Notes kept by Mr. Bagg and myself during the past six years show that they were abundant here during the winters of 1871 - 72, 1873 - 74, 1875 - 76, and 1877 - 78 ; while they were rare or did not occur at all during the winters of 1872 - 73 and 1876 - 77. Their absence was in no way governed by the severity of the winters, but entirely dependent upon the absence of the usual supply of beechnuts. While the greater portion of nuts fall to the ground and are buried beneath the snow far beyond the reach of the Woodpeckers, yet enough remain on the trees all winter to furnish abundant subsistence for those species which feed on them.

I have previously called attention to the fact that in this locality "they subsist almost exclusively on beechnuts, of which evidently they are extremely fond, eating them, apparently with equal relish, whether green or fully matured. It is truly a beautiful sight to watch these magnificent birds, together with their equally abundant cousins, the Yellow-bellied Woodpeckers (*Sphyrapicus varius*), creeping about, after the manner of the Warblers, among the small branches and twigs, which bend low with their weight while picking and husking the tender nuts,—the bright crimson of the head, neck, and breast, the glossy blue-black back and creamy-white belly, together with the scarcely less striking colors of their yellow-bellied companions, contrast handsomely with the deep green foliage," \* — a scene suggestive of the oft-dreamed-of avian paradise amidst the rich verdure of the tropics rather than the cold forests bordering the Canadian Fauna. Then, as they spread their beautiful wings and in graceful undulatory flight pass from wood to wood, their bright plumage glistening in the sun, and, alighting on the farther side of some convenient tree, peep cautiously about to see if intruders are near, one is so wrapped in admiration that he wishes the days of sorcery and magic had not yet gone, that he might be transformed into one of these splendid birds.

They are suspicious creatures, and if danger threatens, utter a hoarse rattling cry, not at all in harmony with their pretty exterior, and are off in an instant. If slowly and stealthily approached, they sometimes hesi-

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\* Ornithology of New York, p. 185, 1844.

† Birds of Connecticut, p. 66, 1877.



tate before taking flight, and run up the trunks muttering to themselves in a grumbling, dissatisfied sort of a way, but taking good care to keep the tree well between them and the intruder, at whom, meanwhile, they take an occasional peep, exposing little more than the bill and one eye, however, so that it is no easy matter to shoot them.

During the autumn the scattered pairs for several miles around usually congregate in some suitable wood, containing a plenty of beech-trees, and here spend the long cold winter in company, chattering and chasing one another about among the trees to keep warm, and to help while away the time. "Coe's woods," in this immediate vicinity, has long been famous as the great winter resort for the Red-headed Woodpeckers of the neighborhood, and it is certainly the most suitable place for their purposes to be found for many miles around. This piece of woods, not over an eighth of a mile in extent, contains, besides hundreds of beeches (*Fagus ferruginea*), a large number of elms (*Ulmus americana*), and white ash-trees (*Fraxinus americana*) of great size, most of the tops of which are now dead. What more favorable location than this woods could a Woodpecker desire? Here they have beechnuts in abundance and a bountiful supply of dead limbs and tree-tops far above the reach of the small charges commonly used by bird-collectors.

The Red-headed Woodpeckers have a very provoking way of keeping on the upper side of a very high limb, so that, from below, one can get little more than an occasional glimpse of the bird's head, and an expectant gazing upward at this is very apt to prove unsatisfactory and to result in a stiff neck. At such times, as if in defiance, their harsh rattling note is constantly repeated, and they are rarely quiet unless taken by surprise at close quarters, when they generally slide quickly to the opposite side of the tree, and after running up a short distance, take flight. Still they are by no means so noisy as the Yellow-bellied fellows, who, not content with stretching to the utmost their vocal powers, take especial delight in drumming on hard resonant trees, eave-troughs, and tin roofs.

Though not particularly quarrelsome in disposition, they evidently enjoy an occasional row, both among themselves and with other inhabitants of the forest. But a short time since (May 14), while passing through Coe's woods, I heard a great commotion among the Woodpeckers, and found a couple of *Melanerpes* worrying a pair of Downy Woodpeckers (*Ficus pubescens*), who had made their nest in a hole in the dead beech, which was the seat of the difficulty. They chased and dove at one another for some time, the Red-heads being the aggressive party, and made considerable bluster and noise, but, so far as actual fighting was concerned, neither party seemed to make much headway; and I put an end to the affray by shooting the *Melanerpes*, who were so excited that they did not notice me at all. At another time, in midwinter (January, 1876), my attention was called, by the noise they made, to a pair of Red-headed Woodpeckers who were diving at something on one of the highest limbs of

a large elm. A near approach showed the object of their malice to be a handsome black squirrel (*Sciurus carolinensis* var. *leucotis*, Allen), who had been unfortunate enough to excite their ire by climbing a tree in broad daylight. The squirrel at first evaded their attacks from above by clinging to the under surface of the limb, and dodged their lateral shoots by a quick side shift, but this was temporary. The Woodpeckers, realizing that they were not tormenting the squirrel to a satisfactory extent, alighted for a brief council, during which the squirrel took occasion to commence a hasty retreat. But the birds were at him again in an instant, this time changing their tactics, and both dove together, the one following closely behind the other, so that as the squirrel dodged the first he was sure to be struck by the second. The blows from their hard bills were so severe and so painful that the poor squirrel had not been struck half a dozen times when he let go his hold and fell to the ground, but was off and up another tree before I could reach the spot. I witnessed a similar attack upon a gray squirrel (color-variety of same species) last August, but this time the squirrel succeeded in getting into a hollow limb. The time of year at which the above instances occurred precludes the possibility that the cause of the difficulty arose from an intrusion on the nesting-grounds of the Woodpeckers, for the first took place in midwinter, and the second after the young were fully fledged and had left the nest. Neither is it at all likely that the trouble was due to an old grudge which might have arisen from a habit, on the part of the squirrel, of robbing the Woodpeckers of their eggs, for the size of the animal is such as to prevent his ready entrance into the Woodpecker's hole, and should he even succeed in getting in he would doubtless pay the penalty with his eyes if not his life. Hence it seems fair to conclude that the disposition of the bird is not altogether in keeping with its pretty plumage, but that it sometimes plays the part of tyrant over those who, from lack of wings or inferiority of size, are unable to offer adequate resistance.

. During the summer months, when beechnuts are striving to become young trees, and insects are particularly abundant, they feed largely on the latter; and in autumn, in some parts of the country, destroy large quantities of fruit, "ripe cherries and pears seeming to be a favorite repast." \*

Like other Woodpeckers they procure larvæ by puncturing dead limbs, and mature insects by searching crevices in the bark, but, unlike other members of the family, they also capture their prey in mid-air, after the manner of the true Flycatchers. Thus occupied, I have several times seen them from fence-posts, and twice from the dead top of "the old gum-tree" (a large spruce), make frequent sallies into the air after passing insects, which were almost invariably secured, so accurate was their aim. Attention has already been called to their fly-catching proclivities by Mr.

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\* J. P. Giraud, Jr. *Birds of Long Island*, p. 180, 1844.

Samuel Calvin \* and others.† In Humboldt County, Iowa, they must be badly demoralized, for Mr. Charles Aldrich states that there they sometimes amuse themselves by braining young poultry. He says: "On watching carefully to ascertain the cause, a Red-headed Woodpecker (*Melanerpes erythrocephalus*) was caught in the act. He killed the tender duckling with a single blow on the head, and then pecked out and ate the brains!" ‡

In the last number of the Bulletin Mr. H. B. Bailey published a letter, relative to the food of this species, from Mr. G. S. Agersborg, of Vermilion, Dakota Ter., which is of such unusual interest that I take the liberty of reproducing part of it here: "Last spring, in opening a good many birds of this species with the object of ascertaining their principal food, I found in their stomachs nothing but young grasshoppers. One of them, which had its headquarters near my house, was observed making frequent visits to an old oak post, and on examining it I found a large crack where the Woodpecker had inserted about one hundred grasshoppers of all sizes (for future use, as later observations proved), which were put in without killing them, but they were so firmly wedged in the crack that they in vain tried to get free. I told this to a couple of farmers, and found that they had also seen the same thing, and showed me the posts which were used for the same purpose." §

Gentry says that in Union and Northumberland counties, in Pennsylvania, "no later than the 10th of August," he has "seen immense flocks, numbering hundreds, in orchards, gleaning among the trunks and branches of apple-trees, for the insects which lurk in their creviced bark. So tame and confiding were they that it was possible to approach within a few paces of them without exciting suspicion or creating alarm." || Not being a migratory species with us, in Northern New York (unless forced to leave by scarcity of food), they are never met with in large flocks, and their wariness depends, of course, upon the amount of persecution to which they are subjected. Well do I remember a winter, about twelve years ago, when in Coe's woods Mr. Bagg and I used to hunt them on snow-shoes with bow and arrow. Then they would often alight close to us, and occasionally paid dearly for their audacity.

During the summer and early autumn they are generally more easily approached than when in winter-quarters.

Yesterday (May 29), while passing a dead stub, I noticed a Red-headed

\* American Naturalist, Vol. XI, No. 8, p. 471, August, 1878.

† Harper's Magazine, and Forest and Stream, Vol. IX, No. 24, p. 451, Jan. 17, 1878.

‡ American Naturalist, Vol. XI, No. 5, p. 308, May, 1877.

§ Bull. Nutt. Ornith. Club, Vol. III, No. 2, p. 97, April, 1878.

|| Thos. G. Gentry. Life Histories of the Birds of Eastern Pennsylvania, Vol. II, p. 148, 1877.

Woodpecker fly from a hole in its side about twenty feet from the ground. On shaking the stub I could distinctly hear young birds within, which greatly surprised me, for many of them are not yet breeding, as shown by the size of their ovaries. The parent bird immediately returned, flying about overhead, and sometimes alighted on the stub, uttering, every now and then, her characteristic ker-r-r-ruck, ker-ruck-ruck-ruck.

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EVIDENCES OF THE CAROLINIAN FAUNA IN THE LOWER HUDSON VALLEY. PRINCIPALLY FROM OBSERVATIONS TAKEN AT RIVERDALE, N. Y.

BY EUGENE P. BICKNELL.

THE restrictionary causes circumscribing geographical divisions of animal and vegetable life, though as yet but imperfectly understood, are well known to bear little relation to absolute latitudinal parallels, but to be largely independent of these equidistant surface divisions, and likewise to a certain extent uncomformable with isothermal lines. The boundaries of faunal areas are usually of an extremely irregular nature, and in their territorial relations contiguous faunæ often present a series of mutual interpenetrations, the apparent invasion by one province of an adjoining district of course being coincident with an opposite extension or penetration of the invaded territory.

Thus from near the northeastern boundary of the Carolinian Fauna two main branches emanate, — one striking up into the valley of the Hudson; the other extending along the Connecticut coast and into the Connecticut valley, through which reaching the Massachusetts border.\* The relations between these two tributaries at their junction with the main body of the fauna to which they belong, or their consolidation before reaching that point, is at present but very superficially understood; but from what knowledge we have in the matter it would appear that their interception occurred somewhere near the mouth of the Hudson, thus including New York City and vicinity in the angle formed by their divergence.

The northern limit of the Hudson River branch is as yet unde-

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\* A Review of the Birds of Connecticut. By C. Hart Merriam, p. 1, 1877.

terminated; but at Riverdale, where, unless otherwise stated, the following observations were taken, the Carolinian Fauna is well represented by the regular occurrence of such characteristic species as *Helmitherus vermivorus*, *Helminthophaga pinus*, *Icteria virens*, *Myiodioides mitratus*, *Stelgidopteryx serripennis*, and *Empidonax acadicus*, and the occasional occurrence of other equally characteristic Carolinian forms, notices of which follow.

**Mimus polyglottis.** MOCKING-BIRD. An individual of this species was seen on October 28, 1877, and on November 21, of the same year, a specimen was shot from a fence by the roadside, by a friend, and kindly presented to me. The bird had been observed near the same place on the previous day feeding on the berries of a cedar (*Juniperus virginiana*). It proved to be a female, and was in good condition, the stomach containing cedar berries, and also those of the common poke or pigeon berry (*Phytolacca*). I am aware of two specimens having been seen in the Central Park within the last few years, probably wild birds; and two have recently been killed on Long Island by Newbold T. Lawrence.\*

**Lophophanes bicolor.** TUFTED TITMOUSE. On November 29, 1874, one of these birds appeared in a certain piece of open woodland in the vicinity, and for several weeks thereafter was occasionally noticed about the same spot, and without doubt remained during the winter, as I am almost certain of having heard it in January, and the following March it was often seen or heard about the same woods, being then in full song. It disappeared after March 28. Mr. Geo. N. Lawrence informs me that some years ago, late in the fall, he noticed a number of these birds near Williams Bridge, but a few miles from Riverdale.

**Thryothorus ludovicianus.** CAROLINA WREN. A specimen was taken in the late fall several years ago by Mr. W. E. Babcock, on a partially wooded slope extending toward the river shore. Two instances of its occurrence on Manhattan Island are recorded by Mr. Lawrence,† and De Kay (p. 55) speaks of having had specimens from Westchester and Rockland Counties, taken as late as the middle of December.

**Helmitherus vermivorus.** WORM-EATING WARBLER. This species is not uncommon during the summer, usually arriving the second week in May (May 2, this year); and, in 1876, I knew of at least five pairs that reared their broods in the immediate vicinity. In the previous year I secured a nest with complement of five eggs, partially incubated on June 13, and have found young birds able to fly on the 27th of the same month. In very young birds, scarcely able to fly, the olive of the adult is only apparent on the remiges, the remainder of the plumage being of a

\* Forest and Stream, Vol. X, No. 13, p. 235, May 2, 1878.

† A Catalogue of the Birds observed in the Vicinity of New York. By Geo. N. Lawrence. 1866, p. 283.



general brownish and deep buffy suffusion, very similar to the color of dead leaves, especially on the breast, and rendering their detection when among the leaves of their favorite haunts very difficult. Does not this adaptation of color to environment in the case of these helpless young appear to be an instance of protective mimicry?

**Helminthophaga pinus.** BLUE-WINGED YELLOW WARBLER. Common during the summer, and regularly breeding. Arrives after the first week in May (May 2, in 1878), and incubation commences by the last of the month.

**Helminthophaga chrysoptera.** GOLDEN-WINGED WARBLER. — Though this species must be of somewhat regular occurrence, I have but one record from the immediate vicinity, a male seen on May 11, 1875.

**Oporornis formosus.** KENTUCKY WARBLER. — Have taken but one specimen in the vicinity, an adult male on May 30, 1875. Mr. J. Wallace informs me that this species occurs during the breeding-season, at Fort Lee, N. J., and that some years since a nest and five eggs with the female bird was taken at that locality. Has been found breeding at Sing Sing, by Mr. A. K. Fisher, N. Y.\*

**Myiodiocetes mitratus.** HOODED WARBLER. — Within the confines of a tract of somewhat elevated though diversified woodland, this species may be seen or heard every day in the early summer after the middle of May, though only on rare occasions has it been noted at other places in the vicinity. In these woods the ground reaches an elevation of (approximately) two hundred and fifty feet, very nearly as high as any land in the vicinity, and here these birds may be found breeding indifferently on the open or wooded summits, or at their base near the low swampy growth bordering the woods. Owing to the encroachment of the Cow Buntings, but a single bird was reared between two nests which I discovered in 1875. I have females in my collection representing well the state of plumage recently spoken of by Mr. Merriam,† and by Mr. E. A. Mearns,‡ of Highland Falls. In one of these birds the black, though well defined in the region of the occiput, is scarcely detectible on the throat; while another, though less definitely marked, represents an almost opposite phase. This bird also breeds abundantly at Fort Lee, N. J., in company with *H. vermivorus* and *H. pinus*, and all three also occur at West Farms, N. Y.§

**Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW. — This species is a regular summer visitor, arriving about the last week in April, and though not uncommon in the spring, but few remain to breed. By the first week in August, however, the species again appears, apparently

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\* Am. Nat., Vol. IX, p. 573.

† Review of the Birds of Conn., pp. 25, 26.

‡ This Bulletin, Vol. III, pp. 71, 72.

§ W. G. Stevens. Forest and Stream, Vol. VI, p. 215.

on its southern migration, and becomes much more abundant than in the spring. On August 5, last, I noticed numbers of these birds in flocks of from ten to thirty individuals lining the fences along the roadside and outnumbering any of the other species with which they were associating. After September 9 none were observed. The greater abundance of this species in spring and late summer than in the intermediate season would seem to indicate a more northern range, and this, taken in connection with the proximity to the Connecticut State line, and the fact that the course of migration at this point tends towards the northeast, would appear to render their regular occurrence there almost assured.

**Cardinalis virginianus.** CARDINAL REDBIRD. — A male specimen was taken on Manhattan Island in February, 1867, by Mr. George Bird Grinnell, it having alighted near his house during a snow-storm, and on October 12, 1874, I saw a pair at Riverdale, where I also observed a male on June 8, 1872. Mr. Akhurst tells me that on Long Island one or more of these birds are taken almost every year, and further states that he has often found them about Sandy Hook, and knew of a pair breeding years ago near Jersey City.

**Corvus ossifragus.** FISH CROW. — As will be seen from the following remarks, there is no doubt that a pair of these birds have been in the vicinity during the past season. I first noticed them on February 24, being attracted by their small size, and for several weeks thereafter they were often seen, their peculiarities of note and habit at once distinguishing them from the common Crow.

Their favorite resort seems to be a growth of tall and partially decayed locusts bordering a fresh-water pond, and on two of these trees, standing together somewhat apart from the others, the birds were to be found almost every morning, but, owing to their shyness and the openness of the ground, I was unable to approach within gunshot. In alighting they usually chose the very topmost branches of the trees, and when approached manifested their suspicion by a restless and excited motion of the wings, which appeared to be more pointed than in the more stoutly built *C. americanus*. Their note was an abrupt, expressionless croak, usually delivered singly and at regular intervals. Though other Crows were often seen in the vicinity, this pair kept aloof by themselves, and several times I saw them chased by a clamorous party of their larger relatives. Latterly they have been rarely noticed, and then always singly, thus indicating that they are breeding in the vicinity.

**Empidonax acadicus.** ACADIAN FLYCATCHER. — Arrives the last week in May, and is not uncommon during the summer, frequenting cool shaded glens or retired woodland usually near a running stream. In any such favorable location in the vicinity these birds may be found every summer, though I have never found more than a single pair occupying any one locality, and know of perhaps six such pairs which are with us

every season. The almost proverbial inconstancy and variableness of these birds in the construction of their nests in different parts of the country, is even apparent at a single locality. Indeed, two nests in my collection, which were taken within a mile of each other, are so entirely dissimilar that were they not positively identified, it would be difficult to believe that they belonged to the same species. This mutability exhibited by the species in question is not confined solely to the construction of their nest ; for in one of the above-mentioned nests the three eggs were almost incubated on June 18, while in the other the last of three eggs was deposited on June 28, showing a difference of at least three weeks in their time of laying. It is worthy of remark that the *first* nest found was much more warmly and compactly constructed than the latter, possibly the result of foresight on the part of the bird.

***Strix flammea americana*.** BARN OWL. — Mr. H. B. Bailey informs me, that late in the afternoon of April 5, last, when passing up Fulton Street, New York City, his attention was directed by a crowd of gaping "citizens" to one of these birds perched upon a house-top, over the street. The bird did not offer to fly, and was left where it had been found, a distinct view of course rendering the identification absolute. Mr. Akhurst has "repeatedly" observed it about Snake Hill, N. J. ; and two specimens taken by him on Staten Island are now in the collection of the Long Island Historical Society.

Numerous other of our more southern birds have been recorded from the vicinity of New York City, which lack of space will prevent my mentioning here. With regard to *Goniaphea cærulea*, however, it might be well to state that besides the specimen recorded by De Kay,\* as having been taken on Manhattan Island, Mr. Akhurst in a single day, many years ago, noticed several specimens about Snake Hill, N. J., and again on Long Island, both instances being in the spring. The same gentleman is aware of several (five or six or more) specimens of *Cyanospiza ciris* having been taken on the coast of Long Island, near the Narrows, and he took two specimens near Brooklyn. All of these birds were in fine plumage, and bore no evident signs of having been caged, agreeing in this respect with a male specimen taken at Riverdale on July 13, 1875, which, however, was in somewhat worn plumage. In the "Elliot collection" at the Central Park Museum, I recollect having seen a fine male specimen labelled "New Jersey." It is within the range of possibility that some of these birds may have wandered northward out of their proper habitat, but the popularity of this species as a cage bird, together with the absence of any records from along the Atlantic Coast north of its known range, would render such a supposition improbable. On the other hand, however, the condition of plumage in which the birds were taken, as well as the appearance of the bill and feet, are evidence which would argue in favor of their being wild.

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\* Birds of New York, p. 146.

NESTING OF THE LARGE-BILLED WATER-THRUSH  
(*SIURUS MOTACILLA* [VIEILL.] Bp.).

BY WILLIAM BREWSTER.

UNTIL very recently we have had little or no reliable information bearing upon the nidification of the Large-billed Water-Thrush. Audubon speaks of its nest as "placed at the foot and amongst the roots of a tree," and describes the eggs as "flesh-colored, sprinkled with darker red on the larger end"; but as he failed to distinguish this bird from its northern congener (*S. nevia*), his account is decidedly unsatisfactory. Mr. T. M. Trippé says \* briefly: "It forms a very neat nest of twigs and grass, which it usually conceals under the roots of a tree overhanging a steep bank or ravine," but he tells us nothing concerning the eggs. In June, 1873, a nest with four fresh eggs was taken at Franklin Station, New London County, Conn., by Mr. Ernest Ingersoll, and fully identified by the capture of the female parent. Of the nest he says: † "It was rather loosely and carelessly constructed of fine grass and some little dead fibrous moss; but beneath, a few, and about the outside, particularly in front, many dead leaves were put, as a sort of breastwork to decrease the size of the entrance and more thoroughly conceal the sitting bird. It was underneath the edge of a perpendicular bank eight or ten feet from the water." The eggs were "lustrous white," and "were more or less profusely spotted all over with dots and specks, and some obscure zigzaggings, of two tints of reddish-brown, with numerous faint points and touches of lilac and very pale underlying red."

The writer had the good fortune to secure two fully identified nests of this species in Knox County, Indiana, during the past spring. The first, taken with the female parent May 6, contained six eggs, which had been incubated a few days. The locality was the edge of a lonely forest pool in the depths of a cypress swamp near White River. A large tree had fallen into the shallow water, and the earth adhering to the roots formed a nearly vertical but somewhat irregular wall about six feet in height and ten or twelve in breadth. Near the upper edge of this, in a cavity among the finer roots, was placed the nest, which, but for the situation and the peculiar character of its composition, would have been exceedingly conspicuous. Its presence was first betrayed by the female, which darted off as one of our party brushed by within a few feet. She alighted on a low branch a few rods distant, uttering her sharp note of alarm, and vibrating her tail in the usual characteristic manner, but other-

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\* Notes on the Birds of Southern Iowa. Proc. Bost. Soc. Nat. Hist., Vol. XV, 1873, p. 234.

† Amer. Nat., Vol. VIII, p. 238.



wise evincing no particular anxiety or concern. The nest, which is before me, is exceedingly large and bulky, measuring externally 3.50 inches in diameter, by 8 inches in length, and 3.50 inches in depth. Its outer wall, a solid mass of soggy dead leaves plastered tightly together by the mud adhering to their surfaces, rises in the form of a rounded parapet, the outer edge of which was nicely graduated to conform to the edge of the earthy bank in which it was placed. In one corner of this mass, and well back, is the nest proper, a neatly rounded, cup-shaped hollow, measuring 2.50 inches in diameter by 2.50 inches in depth. This inner nest is composed of small twigs and green mosses, with a lining of dry grasses and a few hairs of squirrels or other mammals arranged circularly. The eggs found in this nest are of a rounded-oval shape and possess a high polish. Their ground-color is white with a fleshy tint. About the greater ends are numerous large but exceedingly regular blotches of dark umber with fainter sub-markings of pale lavender, while over the remainder of their surface are thickly sprinkled dottings of reddish-brown. But slight variation of marking occurs, and that mainly with regard to the relative size of the blotches upon the greater ends. They measure, respectively,  $.75 \times .63$ ,  $.78 \times .64$ ,  $.75 \times .63$ ,  $.76 \times .62$ ,  $.76 \times .62$ ,  $.75 \times .61$ .'

The second nest was taken May 8, on the opposite side of the same pond, in a precisely similar situation. Attention was first called to its proximity by the presence of the old birds, which were sitting on a mossy log a few yards off, the male pouring forth an almost uninterrupted strain of gushing melody to his mate. Enlightened by previous experience, the writer went directly to the only fallen tree in the vicinity, and almost at the first glance among the earth-laden roots looked in upon the eggs. This nest was very prettily sheltered from the rains, and concealed from prying eyes above, by a large white fungus, about the size and very nearly the shape of a shingle, which projected directly over it from the wall of earth behind, barely leaving sufficient space beneath to admit the passage of the bird. In general character this nest is nearly identical in every respect with the one already described. It has the same rounded outer wall of closely impacted dead leaves, with, however, an admixture of dry mosses, cypress twigs, and strips of bark. In shape it is nearly square, measuring externally 6.50 inches in diameter by 3.54 inches in depth. The inner nest measures 2.73 inches in diameter by 2.50 inches in depth, and is lined with dry grasses, leaf-stems, and a few white hairs. The eggs were four in number and perfectly fresh; probably more would have been laid had the nest been left undisturbed. They agree closely in shape with those of the first set, and have an equally high polish, but are somewhat more heavily and handsomely marked. The color is creamy-white with heavy blotches of umber-brown generally distributed, but occurring most thickly at the greater ends; fine dottings of lighter brown, and a few spots of pale lavender, fill in the intermediate spaces. They measure, respectively,  $.71 \times .60$ ,  $.71 \times .60$ ,  $.72 \times .60$ ,  $.72 \times .61$ . In each of these two sets the eggs show unusually little variation *inter se*.



On May 12, a third nest, containing five young birds, well feathered and nearly able to fly, was found by my friend Mr. R. Ridgway, on the shore of an isolated little woodland pond. The site, in this instance, was at the foot of a huge stump, the nest being placed in a cavity in the rotten wood. Still another nest was found by the writer, April 29, under the bank of White River, among the earth and roots, and well sheltered by the projection of the bank above. In general construction, as well as situation, this nest was so nearly identical with those already spoken of that any further description would be superfluous. The female was apparently sitting upon the empty nest, and was shot as she flew from it. Upon dissection an egg of full size but without a shell was found in her oviduct, and others in different stages of development in the ovaries. From the above record it may be inferred that the Large-billed Water-Thrush breeds very irregularly, at least in the locality where these observations were made. It seems not unlikely that this may be largely due to the varying height of the water in the different localities which it frequents, the banks of the large rivers and the shores of the ponds connected with them being more subject to inundations in the early spring than the isolated pools and streams among the hills.

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#### DESCRIPTION OF A HYBRID (*HIRUNDO HORREORI-LUNIFRONS*) BETWEEN TWO NORTH AMERICAN SWALLOWS.

BY SPENCER TROTTER.

THE bird from which the following description is taken was shot at Linwood, Delaware County, Pa., May 22, 1878, by Mr. C. D. Wood, whose attainments as an ornithological collector are well known. Unfortunately he did not carefully determine its sex by dissection, though he believed it to have been a male. My attention was first called to it by his informing me that he had shot a cross between the Barn and the Cliff Swallow; and from the following description it will be seen that the bird presents the more strongly marked features of both *Hirundo horreorum* and *Petrochelidon lunifrons*. This blended likeness stamps it as a *hybrid* between the two above-mentioned species. The specimen has been examined by several competent ornithologists, who all pronounce its hybrid nature as unquestionable. The bird is remarkable not only as being the result of a *mésalliance* between two different species, but between two different genera, and it curiously combines the

characters of both in a most marked degree. I have therefore named the bird *Hirundo horreori-lunifrons*, this name suggesting the nature of the hybrid in question.

*Description.*—Bill similar to that of the Barn Swallow (*Hirundo erythrogastra* var. *horreorum*), but rather stouter. Nostrils opening laterally, partially overhung by membrane, though not so much so as in the above-named species. Tarsi about as long as middle toe without the claw, feathered at the upper end on the inside. Toes cleft as in *horreorum*; the lateral claws reach to base of middle. Tail forked for about *one fourth* of its length, with white spots on the rectrices, but not so strongly marked as in *horreorum*, and the outer feathers are not lengthened and linear as in that species. The wings, when folded, reach nearly to end of tail. Head and back steel-blue with a chestnut-brown frontlet, as in *horreorum*, the chestnut extending farther back on the head than in that species. Rump reddish-white, the color paler than in the Cliff Swallow (*Petrochelidon lunifrons*). Wings similar to those of *horreorum*. Throat and breast chestnut-brown, with a slight central black patch, as in *lunifrons*, and a pe toral band as in *horreorum*. Sides under the wings and under parts generally of a shade varying between that of *horreorum* and *lunifrons*. Crissum reddish-white, the longer feathers with a slight smoky tinge. Lores dusky; rictus slightly bristled. Cheeks steel-blue, as in *horreorum*, but with a slight tendency to chestnut, as in *lunifrons*. Dimensions (from the dried skin): length, 5.88; wing, 4.63; tail, 2.69.

## Recent Literature.

ORNITHOLOGY OF THE WHEELER EXPEDITIONS OF 1876 AND 1877. I. REPORT FOR 1876.\*—Notice in the Bulletin of this important paper of Mr. Henshaw's upon the ornithology of California was quite accidentally omitted at the time of its appearance in 1877. The report embodies the results of Mr. Henshaw's investigations into the ornithology of California during the summer and autumn of 1875. Field-work began on June 1, and was prosecuted unremittingly up to October 15. The localities most carefully examined were the islands of Santa Cruz, in the Santa Barbara

\* Annual Report upon the Geographical Surveys West of the One-Hundredth Meridian, etc. By George M. Wheeler, First Lieutenant of Engineers, U. S. A. Being Appendix JJ of the Annual Reports of the Chief of Engineers for 1876. Washington, Government Printing-Office, 1876. Report on the Ornithology of the Portions of California visited during the Field Season of 1875. By Mr. H. W. Henshaw. pp. 224-278.

Channel, at which locality the first two weeks of June were spent ; Santa Barbara, where the party remained until July 13 ; the region about Mt. Whitney, visited in September ; and, lastly, Kernville and Walker's Basin, where the season was ended in October. When it is taken into consideration that much, if not nearly all, of the ground traversed had been previously more or less carefully worked up by ornithological explorers, it is not to be wondered at that comparatively few discoveries are chronicled in the present paper. Among the more important results are the extension, either southward or westward, of the previously recorded range of many species of birds. Several rather tangled problems of seasonal distribution are likewise satisfactorily solved ; as in the case of the two Thrushes, *Turdus Swainsoni ustulatus* and *T. pallasi nanus*, the former being ascertained to be the species which breeds in California, while the latter occurs only as a migrant from regions farther north. *Spizella breweri* is, we notice, accorded specific rank, and on apparently substantial grounds ; but in the case of the Fox Sparrows (genus *Passerella*) we believe the author's more recent investigations have failed to confirm the arrangement settled upon in the present paper. The biographical annotations are often full, and always exceedingly interesting ; especially so is the account of the breeding "rookery," of the Red-and-white Shouldered Blackbirds (*Agelaius tricolor*) in a nettle-bed, and the description of the habits of the little-known Wandering Tattler (*Heteroscelus incanus*).

Mr. Henshaw was misinformed respecting the nest of *Empidonax traillii pusillus* "built in the hollow of a tree." The nest referred to is in the writer's possession, together with the parent birds, which are *Empidonax flaviventris difficilis*. The by far too frequent typographical errors which occur throughout the report somewhat mar its otherwise fair appearance, but we understand that this was unavoidable, as the author was absent and inaccessible at the time of the final revise. As a whole the paper is a most creditable one, and forms a very acceptable contribution to our store of knowledge upon the Ornithology of the State of California.

II. REPORT FOR 1877.\* — This report, which we have just received, opens with a description of the country investigated by Mr. Henshaw during the season of 1876, and which lies in the neighborhood of Carson City, Nevada. Immediately following is a systematic and very able consideration of the faunal provinces of the United States, more especially the Middle and Pacific ones. The eastern slope of the Sierras, though properly belonging to the Pacific Province, is shown to be, to a certain extent, intermediate in its character between it and the Middle Province. The

\* Annual Report upon the Geographical Surveys West of the One-Hundredth Meridian, etc. By George M. Wheeler, First Lieutenant of Engineers, U. S. A. Being Appendix NN of the Annual Report of Engineers for 1877. Washington Government Printing-Office, 1877. Report on the Ornithology of Portions of Nevada and California. By Mr. H. W. Henshaw. pp. 1303-1322.

author draws the line between the Pacific and Middle Provinces at about the eastern foot of the Sierras, deducing this conclusion mainly from the examination of material collected in the neighborhood of Carson and among the eastern foothills of the Sierras. The full results of the season's work are given in two detailed lists, entitled, respectively, "List of Birds observed near Carson City, Nevada, from August 25 to September 16, and from November 10 to November 20, 1876, with Notes," and "List of Birds observed on the Eastern Slope of the Sierras, near Carson City, Nevada, from September 16 to November 7, with Notes." The annotations in both of these lists are in most cases very brief, but some of them possess considerable interest and value. The announcement of the occurrence of *Dendrocygna fulva* in large flocks at Washoe Lake early in the year 1877 is especially worthy of attention. Their appearance in such large numbers is considered by Mr. Henshaw as exceptional, but he regards it as "by no means unlikely that future investigations will show the bird to be a regular summer resident of such portions of this region as are suited to its needs." Among the species occurring upon the eastern slope of the Sierras, *Turdus naevius* is here given for the first time, but unfortunately upon somewhat questionable grounds. The genus *Passerella* is again overhauled, and in the light of more recent investigations a somewhat different and apparently more substantial arrangement decided upon. The three Western forms, *schistacea*, *townsendi*, and *megarhyncha*, stand as varieties of *iliaca*, — a disposition which, we believe, represents Mr. Henshaw's present views upon the subject. — W. B.

ALLEN'S BIRDS OF MASSACHUSETTS.\* — It is seldom that one meets with a local catalogue more thoroughly satisfactory in all essential respects than the present one. Careful, conservative, almost to a fault, and as nearly exhaustive as may be possible, in regard to data, authorities, and evidence, in the cases of rare or irregular visitors, it is a model as to what a local list should be. Of course it is not yet quite perfect, for that feature was not to be looked for, but it is sufficiently so for all ordinary purposes. The data that have escaped the author's keen researches are few indeed and generally not important, while very many are now published for the first time.

The first portion of this list presents the names of three hundred and sixteen species of ascertained occurrence in Massachusetts, not one of which can be challenged. This number might even be increased if several forms were recognized as having what the present writer considers their legitimate specific value. About one hundred and thirty-five are marked as breeding within the State, and this number might also be somewhat extended, to the writer's positive knowledge. *Dendroica striata*, for instance,

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\* A List of the Birds of Massachusetts, with Annotations, by J. A. Allen. Bulletin of the Essex Institute, Vol. X, pp. 3-37, April, 1878.

has been seen in North Adams, in August, with young so immature that they must have been of local origin; *Myiodioides canadensis* breeds every summer in Essex County, the writer having two sets of their eggs taken in Lynn, and of course the omission of the \* from *Colaptes auratus* was an accident. Without wishing in the least to criticise this list of one hundred and thirty-five species, would it not be well, if any of these instances given are inferred, rather than known, to designate all such by a distinguishing mark? And where it is positively known that such species as *Turdus pallasi*, *Mimus polyglottus*, *Certhia familiaris*, *Dendroica caerulescens*, etc. have bred within the State, to mention when and where, as is done in the case of *Junco hyemalis*? The list of Massachusetts species supposed to be extirpated is one of almost painful interest, and one we fear to be ere-long materially increased. Specimens of the Wild Turkey have been taken in Franklin County as late as 1842, but railroads have since completed their extinction.

The third list, of probable occurrences, is also a very interesting one, but in regard to several species rests so entirely on mere speculation as to be suggestive of a conflict of opinions as to the ground of this probability. What, for instance, can be suggested as circumstances likely to bring *Saxicola œnanthe* to Massachusetts? It is of rare occurrence in Labrador, and there only breeds in the extreme northeastern corner. Its migrations are either by way of the Faroes, Iceland, and Greenland, or directly across the ocean to South Greenland.\* *Guiraca caerulea* and *Protonotaria citrea* are supposed to approach Eastern Maine from the northwest by a circuitous route, entirely avoiding Southern New England, which, if correctly inferred, does not favor either ever visiting us, though after what has happened it ill becomes one to even seem to prophesy as to what may not occur! Yet the occurrence of *Ægialitis wilsonia* in Massachusetts is another, in the writer's opinion, not to be anticipated.

Three names are given in a list of very doubtful species. One of these, the Small-headed Flycatcher, whatever it may have been, was probably not a *Myiodioides*. Dr. Pickering's recollections of the individual captured by him in Wenham, and identified by Nuttall, were suggestive of a very small true Flycatcher, and so long as grave doubt exists as to this form, and no type has been preserved, its claim to a full acceptance is inadmissible.

Six birds are classed as introduced species, and ninety others are named as extremely rare or occasional visitors. This number, it is possible, will be largely increased through the larger numbers of observers on the lookout for them, and will always contain an indefinite number of names the conditions of whose presence must ever remain an unexplained enigma. In the spring of 1877 a fine fresh specimen of *Cyanospiza ciris* flew into

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[\* Its capture near Quebec, Canada, and on Long Island, N. Y., and its somewhat frequent occurrence in the Bermudas, might be considered in this connection. (See Baird's Review of American Birds, 1864, p. 61.)—J. A. A.]



an open window in Boylston Street, Boston, and there remains a caged bird. But had it been one before? Probably yes, but possibly no. It had not the appearance or action of one. Yet so probable was it that it had escaped from confinement that it was not thought worthy of a record.

The great merits of Mr. Allen's lists are that they furnish a succinct yet thorough history of all claims, of whatever nature, to be recognized as Massachusetts birds. Its five divisions well present the character of these claims, and show why certain names should not be received. The completeness of the references and data, and the numerous additions, giving new announcements or unrecorded captures, is also quite remarkable. As a matter of course, here and there one or two interesting captures may have escaped his notice, e. g. *Syrnium cinereum*, Lynn, 1872 (History of North American Birds, III, p. 32), while others of which there is no record, and which he could not know, as the capture at Swampscott, August 27, 1876, of *Tringa bairdi*, male, by Mr. Wm. A. Jeffries, and that of a Short-tailed Tern (*Hydrochelidon niger*, Saunders) at Nantucket, August 8, 1877, by Mr. Geo. H. Mackay, both specimens being in the possession of their captors. That these exceptions are so very few attest at once the diligence of the author and the completeness of his list. Thirty-five North American birds have been added to the Massachusetts list since 1867. — T. M. B.

MR. H. SAUNDERS ON THE STERNINÆ.\* — Having had opportunities of examining interesting types of various real or supposed species of *Sterninæ*, the author has anticipated in a measure the monograph of the *Laridæ* upon which he has long been engaged, by giving the gist of his observations in the present revision of the subfamily *Sterninæ*, which may be regarded as the continuation of papers already published in the same periodical on the *Larinæ* and *Lestridinæ*. We have here in condensed and convenient shape the main results of a protracted study, representing much laborious and faithful application; the author has evidently worked with care, and fully availed himself of the unusual facilities he has enjoyed. His examination of the types of various obscure species has enabled him to clear up a good many points hitherto doubtful, and make an exhibit which bears its recommendation on its face. I regard the paper as the most authoritative one we possess on this subject, being prepared, under exceptionally favorable circumstances, by a skilful ornithologist who has made the present family a particular study.

The author, as it seems to me judiciously, greatly reduces the number of genera which have been wildly proposed for birds of this subfamily. Though I formerly admitted a somewhat larger number, in view of my studies of our representatives of the group, than he now recognizes, I freely

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\* On the Sterninæ, or Terns, with Descriptions of three new Species. By Howard Saunders, F.L.S., F.Z.S. Proc. Zool. Soc., 1876, pp. 638-672, Pl. LXI.

concede all that Mr. Saunders claims respecting the shading into one another of several of them, and agree that if we are to take positive structural modification as the only genus-warrant, the minimum number of five must be accepted. Out of more than thirty (!) genera which have been proposed for this remarkably homogeneous and compact group of only about fifty species, Mr. Saunders only allows *Sterna*, *Hydrochelidon*, *Nævia*, *Gygis*, and *Anous*. But it does not follow that a few others, like *Haliplana* and *Sternula*, are not at least convenient sections or subgenera to recognize in so difficult a group.

The three new species are *S. tibetana*, p. 649 (near *longipennis* and *fluviatilis*), *S. curvynatha*, p. 654. f. 1 (the Atlantic form of *elegans*), and *Gygis micro-rhyncha*, p. 668, f. 5 (with a smaller bill than that of *G. candida*, and white instead of black shafts of the primaries). The colored plate illustrates the heads of three species of *Anous*.

Want of space alone prevents me from giving, as I should wish to do, an abstract of this valuable paper; but I must confine myself to such portion as bears upon the species of Terns which occur in North America. According to Mr. Saunders's determinations, our *Sterninæ* stand as follows:

### 1. *Hydrochelidon leucoptera* (Meisn. and Schinz).

*SS. fissipes* and *nævia*, Pall. — *Hyd. leucoptera*, Boie. — *Viralva leucoptera*, Steph. — *Hyd. nigra*, Gray. — *S. nigra*, Schleg. — *Hyd. subleucoptera*, C. L. Brehm. — *Hyd. juvenica*, Swinhoe nec Horsf.

This is the Old World species that I recently recorded as *H. nigra* from Wisconsin (B. N. W. 1874, 709). It seems that Gray, and those of us who have followed him, were wrong in identifying it with *S. nigra*, Linn., the latter being = *fissipes* = *nævia*, L. 1766 = *lariformis*, L. 1758, "as any one who is willing to take the trouble of examining the matter for himself will" find out, says the author.

### 2. *Hydrochelidon nigra* (L.).

*SS. nigra* (p. 227), *nævia*, *fissipes* (p. 228, 1766), L. — *Viralva nigra*, Steph. — *Larus merulinus*, Scop. — *S. surinamensis*, Gm. — *S. plumbea*, Wils. — *Hyd. nigra*, Boie. — *Hyd. fissipes*, Gray. — *Anous plumbea*, Steph. — *Hyd. plumbea*, Lawr. — *Pelodes surinamensis*, Gray. — *Hyd. lariformis*, Coues [from *S. lariformis*, L. 1758].

I am glad to find my union of the American bird with the European indorsed by such well-versed authority; though as to the name, I prefer to take Linnæus at 1758, as the custom now is this side of the water.

### 3. *Sterna anglica*, Mont.

*S. nilotica*, Hasselq. ? (pre-Linnæan). — *Gelochelidon nilotica*, Gray. — *Thalassus anglicus*, Boie. — *Viralva anglica*, Steph. — *Laropsis anglica*, Wagler. — *Gelochelidon anglica*, Cones. — *S. aranea*, Wils. — *Gelochelidon aranea*, Gray. *S. affinis*, Horsf. (type examined, H. S.). — *Gelochelidon balthica*, *G. meridionalis*, Brehm. — *S. macrotarsa*, Gould. — *Gelochelidon macrotarsa*, Gould.

Since I joined *aranea* to *anglica*, it has become generally admitted that

it is identical, and Mr. Saunders now unites *macrotarsa*, reducing all the "Gull-billed" Terns to one.

**4. *Sterna fluviatilis*, Naum.**

*S. hirundo*, L. in part, and of most authors. — *Larus bicolor*, L. *sterna*, L. *columbinus*, Scop. — *S. fluviatilis*, Naum. — *S. senegalensis*, Sw. — *S. wilsoni*, Bp. — *SS. macroductyla*, *macroptera*, Blas. — *S. dougalli*, Layard *nec auct.*

Probably no one thinks of separating the American bird now ; but it was otherwise then.

**5. *Sterna macrura*, Naum.**

*S. hirundo*, L. in part. — *S. paradisea*, Brünn (*nec auct.*). — *S. macrura*, Naum. — *S. arctica*, Temm. — *S. brachypus*, Sw. — *S. pikei*, Lawr. [*pykii*, Bp.]. — *S. portlandica*, Ridgw.

The general impression seems to be that *S. hirundo*, L., is a composite species with which it is best to have nothing to do.

**6. *Sterna forsteri*, Nutt.**

*S. hirundo*, Sw. & Rich. *nec auct.* — *S. havelli*, Aud. (*fide* Coues).

**7. *Sterna dougalli*, Mont.**

*S. paradisea*, Keys. & Blas. and authors, *nec* Brünn. ; *macdougalli*, *douglasi*, of some. — *S. gracilis*, Gould. — ? *Larus polo-candor*, Sparrm.

This name must stand in place of the more usual *paradisea* ; for Brünnich's bird was an Arctic Tern ; the Roseate is not a boreal bird.

**8. *Sterna cantiaea*, Gm.**

*S. africana*, Gm. — *S. boysii*, Lath. — *S. canescens*, Mey. & Wolf. — *S. acyflavida*, Cabot. — *Thalasseus cantiaacus*, Boie. — *Actochelidon cantiaacus*, Kaup. — *Thalasseus canescens*, *Th. candicans*, Brehm. — *Thal. acyflavidus*, Coues.

I long since relinquished my early attempt to separate *acyflavidus*.

**9. *Sterna elegans*, Gamb.**

*Thalasseus elegans*, Gamb. — *Sterna comata*, Phil. & Landb. — *S. galericulata*, Sel. & Salv., Coues, partly, *nec* Licht.

I am glad to find that we may after all revert to Gambel's name, by which the species was long known. I followed S. & S. in changing to *galericulata* in 1872-74 ; but according to Saunders, from examination of the type, the latter is a synonym of *maxima* (= *regia*, Gamb.).

**10. *Sterna maxima*, Bodd.**

*S. maxima*, Bodd. = P. E. 988. — *S. cayennensis*, Gm. — *S. cayana*, Lath. — *S. galericulata*, Licht. (type examined, H. S.). — *S. erythrorynchos*, Wied. — *S. cristata*, Sws. (type examined, H. S.). — *S. regius*, Gamb. — *S. bergii*, Irby, *nec auct.* — *Thalasseus cayanus*, Bp. — *Thal. regius*, Gamb. — *Phaetusa regia*, Bp. — *Thal. galericulatus*, Blas. — *Thal. cayennensis*, Gray.

This large Tern, which proves to inhabit Africa as well as the warmer parts of America, has given much trouble. In 1872-74, I declined to follow S. & S., 1871, in identifying *regia*, Gamb., with Buffon's bird, considering that *caspia* might be in question, but I was apparently at fault

here. Saunders makes a gratifying identification in the case of the troublesome *galericulata*, Licht., and it is to be hoped that his examination of the type has settled that species.

#### 11. *Sterna caspia*, Pall.

*S. tschegrava*, Lepech. — *S. caspia*, Sparrm. — *S. megarhynchos*, Meyer u. Wolf. — *S. melanotis*, Hartl. — *S. major*, Ellman. — *Thalassus caspius*, Boie. — *Hydroprogne caspia*, Kaup. — *Sylochelidon caspia*, *Syl. balthica*, *Syl. schillingii*, Brehm. — *Syl. strenuus*, Gould. — *Holopus caspius*, Wagl. — *Thalassites melanotis*, Sw. (type examined, H. S.). — *Syl. melanotis*, Bp.

#### 12. *Sterna trudeaui*, Aud.

*Phatusa trudeaui*, Blas. — *Sterna frobenii*, Phil. & Landb.

A remarkably good species, but as doubtful as ever as a North American one.

#### 13. *Sterna antillarum*, Less.

*S. argentea*, Nutt. — *S. frenata*, Gamb. — *S. superciliaris*, Cab., Coues, 1872, nec V. — *S. Superciliaris* var. *antillarum*, Coues, 1874.

I was doubtless hasty in identifying our bird positively with Vieillot's, but I am not prepared, without further showing than is in this paper, to admit specific distinction in this case. *S. minuta* has a white rump and tail; in *SS. superciliaris* and *antillarum* the pearly color of the mantle extends on these parts. But I was not aware of, or at least did not consider, the difference in the color of the feet, as described by Mr. Saunders.

#### 14. *Sterna aleutica*, Baird.

Sp. optima! as the author agrees, differing from Dr. Finsch; whatever *S. camtschatica*, Pall., may be, it is not this.

#### 15. *Sterna anæstheta*, Scop.

*S. cinctethus* (sic), Scop. — *Haliplana anosthetus* (sic), Gray. — *S. panayensis*, Gm. — *S. panaya*, Lath. — *Haliplana panayensis*, Wagl. — *Onychoprion panayensis*, S. & S. — *Onychoprion panaya*, Gould. — *S. oahuensis*, Bloxh. — *S. "antarctica"*, Cuv. — *S. melanoptera*, Sw. (type examined, H. S.) — *S. infusata*, Heugl. — *Haliplana discolor*, Coues. — ? *Hydrochelidon somalensis*, Heugl.

#### 16. *Sterna fuliginosa*, Gm.

*Haliplana fuliginosa*, and *Onychoprion fuliginosa*, Wagl. — *Planetis guttatus*, Wagl. — *Sterna infusata*, Licht.! (type examined, H. S.). — *Thalassipora infusata*, Gray. — *Anous l'herminieri*, Less. — *S. gouldii*, Reich. — *S. luctuosa*, Phil. & Landb. — *Halip. fuliginosa* var. *crissalis*, Bd.

#### 17. *Anous stolidus*, (L.).

*S. stolidus*, *S. fuscata*, L. — *S. pileata*, Scop. — *S. scæx*, Leach. — *S. unicolor*, Nordm. — *Anous stolidus*, Gray. — *Megalopterus stolidus*, Boie. — *A. niger*, *A. fuscatus*, *A. spadicea*, Steph. — *A. rousscaui*, Hartl. — [*A. stolidus* var. *frater*, Coues, pessimè.]

It is to be hoped that in his final monograph the author, who has thus handled the subject so ably, will synonymize the genera in the same way

he has here worked up the synonymy of the species, and that he will spare no printer's ink which may be wanted for the full exposition and discussion of synonymatic matters, giving us his processes as well as his results; so that, being once done, the matter may be done for once and all. The present writer's interest in the subject yields only to the cordiality of his wishes for the most successful accomplishment of the author's work. — ELLIOTT COUES.

SENNETT'S NOTES ON THE ORNITHOLOGY OF THE LOWER RIO GRANDE, TEXAS. — Mr. Sennett's contribution on one hundred and fifty-one species of birds observed on the southern border of Texas\* is a paper of more than ordinary interest for one of its kind, the descriptions in many cases being almost a biography of the species, a number being those of which we have had but little or no previous information, and it covers ground quite new ornithologically, or at least not recently worked over. The main collecting field extended from a short distance above Hidalgo, on the Rio Grande, to Point Isabel on the coast, near the mouth of the river, a distance of three hundred miles by water and one hundred by road. The period covered was from the latter part of March to the middle of May, or just about two months. Mr. Sennett certainly collected under many annoyances, but intensely hot days, and numbers of centipedes, rattlesnakes, tarantulas, fleas, woodticks, and red bugs did not prevent his securing some five hundred birds, one of which is new to science, namely, Sennett's Warbler (*Parula nigrilora*).

The paper is most carefully commentated by Dr. Coues, who gives detailed descriptions of the plumages, with pertinent remarks respecting the above-named Warbler, *Molothrus æneus* (our new Cowbird, with a red eye), *Myiarchus crinitus erythrocerus* (which is the variety of the Great-crested Flycatcher occurring, and not *cooperi* or *cinerascens*), *Amazilia cerviniventris* (the Rufous-bellied Hummer), *Glaucidium ferrugineum* (both the second examples taken within our limits), and *Æchmoptila albifrons* (the White-fronted Pigeon), as also the characters of this genus, which the doctor proposes for the group of Pigeons to which *albifrons* belongs.

The Yellow-throated Warbler obtained is typical *Dendroica dominica albiflora*, which, Dr. Coues remarks, "seems to prevail, if it be not the only form, in the Mississippi Basin and Texas." Mr. Sennett got a single specimen of the Missouri Skylark, and saw others; interesting, as Coues says, "on account of the locality, which is the southernmost on record." The Quails are true subspecies *texana*. The skins of *Peuceea cassini* are valuable as proving by their plumage that the species is a good one. A specimen of the Painted Finch or Nonpareil was shot, which, though in

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\* Notes on the Ornithology of the Lower Rio Grande, Texas, from Observations made during the Season of 1877. By George B. Sennett. Edited, with Annotations, by Dr. Elliott Coues, U. S. A. Bull. U. S. Geol. and Geograph. Survey, Vol. IV, pp. 1-66, February 5, 1878.



the plumage of the adult female, dissection proved to be a male bird. Mr. Sennett is confident that the Turnstone (*Streptilas interpres*) breeds along the entire coast of Texas, — certainly an interesting fact, if so.

The beautiful Ibises obtained, and to which the writer justly gives two pages of text, are the white-faced bird, *Falcinellus* (late *Ibis*) *guarauna*; and two young birds, entirely green-feathered, place *thalassina* among the synonyms. Is not this species now entitled to be called the ordinary North American bird rather than *igneus* (late *ordii*? of modern writers)?

The nomenclature of the *Ardeidæ*, or Herons, is based on Mr. Ridgway's late investigations, and we again have for *Ardea egretta*, *candidissima*, and *cerulea* the genera, respectively, *Herodias*, *Garzetta*, and *Florida*; also *Hydranassa tricolor* for late *Ardea leucogastra* var. *leucophrymna*; *Dichromanassa rufa* for *Ardea rufa*, and *Nyctherodius* for *Nyctiadea violaceus*. The whole makes very interesting reading, and is a valuable and welcome addition to our increasing file of local list. — H. A. P.

MAYNARD'S BIRDS OF FLORIDA. — Part IV of this long-delayed and important work,\* which has recently appeared, is wholly devoted to the family *Fringillidæ*, of which fourteen species are described, carrying the group from *Chrysomitris* to *Pipilo*. It is illustrated with a fine colored plate of the Ipswich or Pallid Sparrow (*Passerculus princeps*), representing the adult in spring. To original, somewhat detailed descriptions of the different phases of plumage of the various species treated the author adds short, very pleasantly written descriptions of their habits. The biographical portions generally relate more especially to their life in Florida, as observed by the author during many seasons of exploration, covering nearly all parts of the State. Mr. Maynard's long experience as a field ornithologist in the "Land of Flowers," and his well-known attainments as a naturalist, render him eminently fitted for the work he has here undertaken. Although the fascicles of the work have thus far appeared at rather long intervals (the first part having been issued in 1872), we are assured that it will now be rapidly pushed forward to completion. — J. A. A.

JORDAN'S MANUAL OF VERTEBRATED ANIMALS. — We are glad to see that the demand for Professor Jordan's excellent Manual of the Vertebrates of the Northern States has so soon rendered necessary a new edition† of this important work, and that the second edition has not only been to

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\* The Birds of Florida, with the Water and Game Birds of Eastern North America. By C. J. Maynard. Illustrated. 4to. Part IV, pp. 89-112, and one Plate. C. J. Maynard & Co., Newtonville, Mass., 1878.

† Manual of the Vertebrates of the United States, including the District east of the Mississippi River, and north of North Carolina and Tennessee, exclusive of Marine Species. By David Starr Jordan, Ph. D., M. D., etc. Second Edition, revised and enlarged. Chicago: McClurg & Co., 1878. 12mo. pp. 407. Price, \$2.50.

some extent "revised," but enlarged by the addition of upward of fifty pages of new matter. The former accounts of the mammals, birds, and reptiles remain unchanged, with the exception of a few verbal changes in respect to nomenclature, but several pages of new matter are added in the "Addenda," in which are included fifteen species of mammals and seven of birds not contained in the former edition. The account of the fishes has been entirely rewritten; generic diagnoses have been substituted for the "artificial keys" of the former edition; and the latest results of this author's recent investigations of this class have been incorporated. The high praise we felt justified in bestowing upon the first edition (see this Bulletin, Vol. I, p. 93) consequently applies with a still greater force to the present one. We hope that at no distant day the author will feel justified in so far enlarging the scope of his work as to include all the Vertebrates of North America, or, at least, of that portion north of Mexico. — J. A. A.

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## General Notes.

CAPTURE OF THE YELLOW-THROATED WARBLER IN MASSACHUSETTS, AND NOTES ON OTHER RARE MASSACHUSETTS BIRDS. — In the collection of Mr. George E. Browne of Dedham I saw, a few days since, a Yellow-throated Warbler (*Dendroica dominica*) that was shot by him on the banks of Charles River in that town nine or ten years ago. This is a new bird to the State and the second New England record. Mr. Browne also had a specimen each of the King Rail (*Rallus elegans*) and the Snow Goose (*Anser hyperboreus*). The former was got on the Sudbury Meadows some years since, the latter off Scituate in November, 1877. This occurrence of the Rail is the second instance known for Massachusetts, and the Goose is perhaps worth noting. — H. A. PURDIE, *Newton, Mass.*

CAPTURE OF TWO RARE BIRDS IN THE HUDSON RIVER VALLEY. — 1. **Centurus carolinus** (Linné) Swainson. RED-BELLIED WOODPECKER. — I recently examined a handsomely mounted Woodpecker of this species in the possession of Mr. Jas. S. Buchanan, of Newburgh, which was taken at Cornwall, on the Hudson, in September, 1870.

2. **Colymbus septentrionalis** (Linné). RED-THROATED DIVER. — After ineffectual efforts to trace supposed specimens of this species, I was agreeably surprised to find a fine immature example in the collection of Mr. Peter de Nottbeck, Esq., taken (near his residence) November 14, 1876, on the Hudson River, at Low Point, sixty-one miles from New York. — EDGAR A. MEARNs, *Highland Falls, N. Y.*

3. THE BLUE-GRAY GNATCATCHER (*Poliophtila caerulea*) IN MASSACHUSETTS. — Among a number of mounted birds presented to the New England col-

lection of the Boston Society of Natural History by Mr. F. I. C. Swift of Falmouth, Mass., is an adult male specimen of the Blue-gray Gnatcatcher. This is the second record of its occurrence, the first specimen having been taken at Chatham, November, 1877 (Nutt. Bull., III, p. 45). It appears, by the letter of Mr. Swift, that his specimen was taken in the same part of the State one month later. In answer to my letter of inquiry, Mr. Swift writes: "I shot it on the 18th day of December last, in a line of low bushes skirting a fresh-water pond (in Falmouth) which separated the same from an old field thickly studded with pines of several varieties and about ten years' growth. The locality was in a southern exposure, and I think there was no ice at that time on the pond." — T. M. BREWER, *Boston, Mass.*

THE GROUND DOVE (*Chamæpeleia passerina*) IN NEW YORK. — In the month of October, 1862, while shooting Robins and Golden-winged Woodpeckers near 158th Street and 12th Avenue, New York City, I killed a bird of this species. It was one of a flock of seven which were sitting in a tall tulip-tree near the road. At that time, being but a young boy, the only interest attaching to the specimen arose from the fact that it was the first "Pigeon" that I had ever shot, but as I was somewhat familiar with the plates of Audubon's Birds of America (the original edition, folio) I recognized the bird as one that I had seen, and, on comparison with the plate (CLXXXII), I decided that it was a young Ground Dove. I subsequently took the specimen to the late John Woodhouse Audubon, who, after examination, confirmed my previous conclusion, and told me that it was a southern bird which he had never seen so far north before. The specimen was not preserved, nor can I give, more exactly than I have already done, the date of its capture. — GEORGE BIRD GRINNELL, *New Haven, Ct.*

SWALLOW-TAILED KITE IN DAKOTA IN WINTER. — I am informed by my valued correspondent, Dr. C. E. McChesney, U. S. A., of the occurrence of *Elanoides forficatus* at Fort Sisseton, Dakota, during nearly the whole of last winter. The Indians also informed Dr. McChesney of the residence of the bird along the James River in the winter and early spring months, and of its giving them some trouble by springing their traps, occasionally, however, getting caught itself. This account tallies with Trippe's Minnesota record (north of Mille Lac, lat. 47°). While at Pembina, Dakota, lat. 49°, I was assured by an officer of the occasional appearance of the bird there. — ELLIOTT COUES, *Washington, D. C.*

APOLOGETIC. — I sincerely regret that my hasty and inaccurate reference to Mr. N. C. Brown's brief mention of the occurrence, near Portland, of the Sharp-tailed Finch should have given to that gentleman even a moment's annoyance. Nothing could have been farther from my intention than to "misquote" him. Indeed, had I *quoted* him the mistake could

not have been made. My point of interest was the *locality*, the number seen was to me of no moment. Remembering that he had spoken of the "bird" in the singular number, I had a mistaken impression that he had seen but one. Certainly the readers of the Bulletin have no occasion to regret my careless mistake, since it has been the means of eliciting an interesting and more full account of the occurrence of this species in a before unknown and unusual locality.

My statement that not a specimen of the *Micropalama* was then known to have been taken along the entire coast of Maine may have been "sweeping." It was so intended to be. At the time it was made it was literally and exactly true. Of the occasional and irregular occurrence of this bird in the vicinity of Portland I am well aware (see Proc. Boston Soc. Nat. Hist., Oct. 3, 1877). Its presence at a single point on the western portion of the coast of Maine, so long as all the rest of the coast is destitute, does not prove either that it is regular in its migrations, or that these extend along the whole New England coast. — T. M. BREWER, *Boston, Mass.*

THE STILT SANDPIPER (*Micropalama himantopus*). — In a late paper read before the Linnean Society of New York, Mr. N. T. Lawrence speaks of this species as being common on the south side of Long Island (N. Y.). He has quite often, while Bay-Snipe shooting, had parties of from three to five, and very frequently a single bird or a pair, come to his decoys. And, of the four specimens in his collection, two, in adult breeding plumage, were taken in July, the others, in fall plumage, in September. This note is interesting as presenting different conditions from any recorded in New England. But one occurrence of this species is known in July, and that in the last part of the month and fifteen miles from the sea. Mr. Geo. N. Lawrence writes me, in reference to this same species, that he lived at Rock-away for five summers, and on one occasion, when he was there, there was a flight of this species and *Gambetta flavipes*, the latter the most abundant, and of the two species there were killed over one hundred and twenty individuals. He remembers killing six of *M. himantopus* at one shot. He never saw so many together as on that day, but all through the season scattering ones were shot. — T. M. BREWER, *Boston, Mass.*

OCCURRENCE OF THREE SPECIES OF SEA-DUCKS AT ST. LOUIS, MISSOURI. — Mr. Julius Hurtur, of St. Louis, Mo., informs me in a recent letter that he has taken the following-named species of "maritime" Ducks in the neighborhood of that city. They were captured in the so-called "American Bottom," on the Illinois side of the Mississippi River. The record is of special interest as indicating how widely these birds wander beyond their supposed usual range.

1. *Ædemia americana*, Swain. AMERICAN BLACK SCOTER. "A single immature bird, shot November 24, 1875."

2. *Ædemia fusca*, Swain. VELVET SCOTER. "Two specimens, both immature, taken November 24, 1877."

3. *Ædemia perspicillata*, Fleming. SURF-DUCK. "One specimen, immature, procured May 3, 1876. It was observed in company with 'Black Jacks' (*Fuligula affinis*)".

Mr. Hurtur also writes that he took a fine specimen of the Purple Gallinule (*Porphyrio martinica*) at the same locality, April 18, 1877. These birds are now all preserved in Mr. Hurtur's collection, which embraces nearly all the species common to the vicinity of St. Louis. — J. A. ALLEN, *Cambridge, Mass.*

THE CAROLINIAN FAUNA. — In Mr. E. P. Bicknell's excellent paper on southern birds occurring at Riverdale, N. Y. (see this number of the Bulletin, pp. 128–132), I am pleased to find so strong a confirmation of what I ventured to write in 1871 (when the accessible data bearing on the subject of the northern boundary of the Carolinian Fauna were much fewer than now), namely: "On the Atlantic coast this fauna [Carolinian] includes Long Island and a small portion of Southeastern New York, which form its northern limit." I also enumerated thirty-two species as being in a general way "limited in their northward range" by this fauna, adding that a few of them occur also "as stragglers in the Alleghanian Fauna." \* These thirty-three species include not only those enumerated by Mr. Bicknell, but also many others equally characteristic of the Carolinian Fauna.

Boundaries between faunæ cannot of course be drawn trenchantly; there must be a slight overlapping of northern and southern species, resulting in a debatable or transitional narrow belt between two contiguous faunæ where neither are typically developed. As Mr. H. A. Purdié stated in 1873, "no part of New England has been embraced within the Carolinian Fauna, and properly so, but that its southern border has a tinge of it is quite evident." † While no part of Connecticut is perhaps *typically* Carolinian, its southern border, especially about the mouth of the Connecticut River, is so strongly tinged with it that it may be regarded as doubtful whether it is not as much Carolinian as Alleghanian. ‡ Several of the Carolinian birds, in certain years at least, straggle northward, especially in the valley of the Connecticut, to Massachusetts, while some are of quite regular appearance, in very small numbers, as far northward and eastward as Essex County. Yet they are too few in number and too uncertain in their occurrence to form a characteristic element of the fauna.

In the opening paragraph of Mr. Bicknell's paper he refers to the limitation of faunæ and floræ as being "to a certain extent uncomfortable

\* Bull. Mus. Comp. Zool., Vol 11, pp. 393, 394, April, 1871.

† Amer. Nat., Vol. VII, p. 693, November, 1873.

‡ This "tinge" in Southern Connecticut, and in fact in the extreme southeastern (maritime) portions of New England generally, is especially shown by the distribution of reptiles, where several southern species are sparingly represented which do not occur at all at more northerly localities.



with isothermal lines." As regards local details this is doubtless in some measure true, but, considering the subject broadly, it may be safely asserted that if there is any principle in ontological geography about which students of the subject generally agree, it is that temperature exerts a direct and controlling influence upon the distribution of life over the surface of the globe. As regards birds, and probably plants and marine life, if not animal and vegetable life in general, the phrase "isothermal lines" should not be taken as meaning lines of mean *annual* temperature, but lines of equal temperature for particular seasons of the year, since in different groups it has been found that the isochrymal or isothermal lines are more strictly the boundary-lines for species and faunæ and floræ than the mean annual lines. Professor A. E. Verrill\* long since pointed out that the mean temperature of the breeding season is of more importance as regards the limitation of birds than that of the whole year,—a suggestion well supported by later investigations.† It is to be borne in mind, however, in this connection, that the lines of mean temperature *as laid down on charts* are only approximate, and do not follow in detail all the minor curves, as becomes apparent at once on a detailed study of any limited region of diversified area. Hence we cannot expect to find the limits of species agreeing in detail with any of the lines as represented on our best meteorological charts. Again, the boundary-lines of species are not constant, and the same is also true of lines of mean temperature, varying as they do more or less in different years. These facts obviously show that we need never expect to be able to lay down an absolute or rigid line of demarcation for either species or faunæ, but that such boundaries must ever be provisional and approximate, and hence somewhat open to differences of interpretation. — J. A. ALLEN, *Cambridge, Mass.*

PHALAROPE, — AN ETYMOLOGICAL BLUNDER.—Happening, not long ago, to be a little curious about the exact meaning of the word Phalarope or *Phalaropus*, I took occasion to consult a Greek dictionary on the question, and by so doing unearthed a somewhat curious etymological blunder. Brisson, who was the first to give the name to the genus,‡ explains it as follows: "Phalarope, a name that I have given to the birds of this genus, because of the resemblance of their feet to those of the Coot, called, in Greek, *φαλαρίς*." Now, *Phalaropus*, according to all rules for the composition of Greek and Latin words, does not mean "coot-foot" at all, as Brisson intended it should, but "white-patched-foot" (from *phalaros*, "patched with white," and *pous*, "foot"), which is a manifestly inapplicable name, since the *Phalaropes* all have black or green feet. *Phalaridopus* (from *phalaris*, genitive *phalaridos*, "coot," and *pous*) would mean "coot-foot,"

\* Amer. Journ. Sci. and Arts, 2d Ser., V l. XLI, 1866, p. 249.

† See Bull. Mus. Comp. Zool., Vol. II, 1871, p. 390. Merriam, Rev. Birds of Conn., 1877, p. 2, etc.

‡ Ornithologie, VI, p. 12, 1760.

and this is what Brisson should have written. Nevertheless, the name has served so long as a distinguishing mark of the genus, that it would be by no means advisable to attempt to make an exchange for the etymologically correct form. It is, however, an interesting example of the necessity of a little care in compounding scientific names, if we wish to have them retain any meaning.—JOHN MURDOCH, *Roxbury, Mass.*

**BREEDING OF THE WOODCOCK IN GEORGIA.**—Mr. A. T. Cunningham of Atlanta—an enthusiastic sportsman and competent observer—informs me that one of a party consisting of his brother Mr. C. M. Cunningham, Mr. Martin Tuffts, Mr. Russell (all of Savannah), and himself, while woodcock-shooting on February 17, 1878, at Winkler's and Read's rice-plantations on the Savannah River about twelve miles from that city, in the swamp through which runs the trestle-work of the Charleston and Savannah Railroad, flushed a female Woodcock from a nest containing four eggs. The nest was found after the bird had been shot. Upon this discovery the party gave up shooting. From the actions of other birds of the same species seen on that day, showing an unwillingness to go far from the spots whence they were first flushed, Mr. Cunningham is of the opinion that they were laying. He states that he has frequently seen Woodcock—single birds—at various times throughout the summer, in the swamps near Savannah. The inference is that they breed there.—J. F. HEAD, *Atlanta, Ga.* (*Communicated by E. C.*)

[The Woodcock has been found breeding as far south as Jacksonville, Florida (*Boardman*, *Forest and Stream*, VIII, 82). While in Jacksonville I had the pleasure of examining the young birds spoken of by Mr. Boardman, and also four chicks of another brood taken near the city on March 10, 1877; all were of about the same size, perhaps a week old. Old hunters at Saint Mary's, Camden County, Georgia, have also assured me that the Woodcock remains in that neighborhood throughout the year.—WILLIAM BREWSTER.]

**INTERESTING CAPTURES.**—My near neighbors, the brothers E. O. and Outram Bangs, have received during the past week two species whose undoubted occurrence in Massachusetts is worthy of mention:—

**Ibis falcinellus.** GLOSSY IBIS. — A specimen of this species, now conceded to be identical with *Ibis ordi* of Bonaparte, was purchased in the Boston market. It was a fine adult specimen, and had been secured at Orleans, Cape Cod, May 5. Its previous capture here has been recorded by Emmons, Cabot, Nuttall, and others, most recently by Mr. J. A. Allen, from Nantucket (*Am. Nat.*, III, 637), and by Dr. Palmer, from Alton, N. H. (*Am. Nat.*, V, p. 120).

**Phalaropus hyperboreus**, Temm. — NORTHERN PHALAROPE. — A single specimen, not in full plumage, was shot at the same place, and found in the market May 10. It had been dead several days, and the exact date of its capture cannot be given, but probably about May 5.—T. M. BREWER, *Boston, Mass.*

[I have found *Phalaropus hyperboreus* to be of by no means rare occurrence in Boston market, from Cape Cod and elsewhere along the Massachusetts coast, and remember upon one occasion purchasing four specimens there. It is, however, like several other off-coast species, not commonly found near the land unless forced to take shelter from severe storms.—WILLIAM BREWSTER.]

THE GLOSSY IBIS IN MASSACHUSETTS.—I have had the pleasure of examining a fresh specimen of the Glossy Ibis (*Ibis falcinellus*), which was taken, May 4, 1878, on Cape Cod, Mass.—CHARLES B. CORY, *Boston, Mass.*

A note from Mr. Ruthven Deane, respecting the above-mentioned specimen. states that it was shot at Eastham, Mass., by Mr. Augustus Denton.

Mr. N. Vickary, of Lynn, Mass., writes me that he has in his possession also a specimen of this species (*Plegadis falcinellus*, Kaup, the *Falcinellus igneus* of recent writers, the *Ibis ordi* of most American writers\*) taken at East Orleans, May 5, 1878. This, with the specimens above recorded by Dr. Brewer and Mr. Cory, makes three that were taken at nearly the same date and near the same locality on Cape Cod, during the first week of May, the present year.—J. A. ALLEN, *Cambridge, Mass.*

TWO MORE BIRDS NEW TO THE FAUNA OF NORTH AMERICA.—Professor Baird writes me that among some birds recently taken by Dr. James C. Merrill near Fort Brown, Texas, and forwarded to the Smithsonian Institution, are examples of *Vireo flavo-viridis* and *Sturnella mexicana*. Both of these species are new to our fauna.—T. M. BREWER, *Boston, Mass.*

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\* Opinion varies much among recent writers respecting the proper generic and specific names of this species. Nearly all late writers have adopted *Falcinellus* ("Bechstein, 1803") for the generic name, and *igneus* (Gmelin, 1771) for the specific name. Reichenow, however, employs *rufus* (Scopoli, 1769). Salvin and Selater have recently claimed *Plegadis* (Kaup, 1829) for the generic name, thereby rendering *falcinellus* (Linné, 1766) available for the specific designation. On this point these authors write as follows: "A reference to Bechstein's work shows that that author called the Glossy Ibis *Numenius falcinellus*, and in no way employed the latter title in a generic sense. Failing *Falcinellus*, *Plegadis*, Kaup (Skizz, Entw. Gesch., p. 82, 1829), appears to stand next in order of date; and thus *Plegadis falcinellus* (L.) would be the correct name for the Glossy Ibis."—*Ibis*, 4th Ser., Vol. II, January, 1878, p. 112.

# BULLETIN

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### THE PROTHONOTARY WARBLER (*PROTONOTARIA CITREA*).

BY WILLIAM BREWSTER.

It is not so much my present purpose to go over what has been already written concerning this beautiful and striking Warbler, as to present the result of some original observations, made under very favorable circumstances, in Wabash County, Illinois, and Gibson and Knox Counties, Indiana. Nevertheless, a brief preliminary reference to its past biography may not be out of place here.

The species was first described by Boddaert in 1783. Very little concerning its life history has been put on record by our earlier ornithological writers. Audubon's account is decidedly the best, though it is somewhat brief, and in some respects probably erroneous. Recently more light has been thrown upon the subject, especially in regard to its geographical range and nesting. Judging from the evidence recorded, its distribution is somewhat irregular and erratic, though future investigation may probably be relied upon to fill many apparent gaps. Along the Atlantic coast it occurs more or less regularly — but nowhere, so far as known, numerously — as far north as Charleston, S. C., and as a straggler to Washington, D. C. (Coues and Prentiss); Pennsylvania (Turnbull); and even, as a purely accidental wanderer, to Calais, Me. (Boardman). Westward it is found more abundantly throughout the Gulf States, and extends its migrations north to Kansas, Missouri, and Southern Illinois and Indiana. Indeed, it is probable that its maximum abundance during the breeding season is reached in the States lying about the junction of the Ohio and Mississippi Rivers.

The middle of April, 1878, found me at Mount Carmel, Ill., in

the pleasant company of Mr. Robert Ridgway, with the delightful anticipation of a prospective four weeks among the birds of a, to me, new region. What ornithologist but has felt the sensations arising at such times, — the pleasing certainty of meeting many species that are known to occur ; the stimulating hope of detecting others that may, nay, probably will, be found ; and the vague dream of securing some rare prize that shall excite the interest of the whole ornithological world ? But most potent of all to encourage and sustain are the possibilities, without which the toils and hardships of field collecting would be but sad drudgery. A person of prosaic temperament can rarely if ever make a good field-worker. Enthusiasm must be the spur to success. At the time of our arrival there was a temporary lull in the development of the season. March and early April had been unusually warm and pleasant, and vegetation had far advanced. Many of the forest trees were already green with young foliage, and the leaves of others were beginning to unfold. But a period of cold rainy weather succeeded, and everything for a time was at a stand-still. On April 19 the first Prothonotary Warblers were seen. They seemed to be new arrivals, forerunners of the general migration ; shy, comparatively silent, and with that peculiar restraint of manner observable in the first comers of most migratory birds, — a restraint not so much to be wondered at, for a subtle chill and gloom still brooded over the budding forest. Nature seemed to hold her breath in expectancy, and the birds, as well as all wild creatures, are her children, and sympathize in all her varying moods. What lover of the woods has not observed the effect produced upon them by a sudden undefinable something that comes at times over the face of everything, — a slight imperceptible chill, perhaps, or a brief period of cloudiness ; where a moment before all was life, bustle, and joyous activity, there is now brooding depression and almost death-like silence. Oftentimes the effect is but transient ; and the former state of things soon resumes.

With a few warm days the change came, and Nature entered upon her gala-day. The tree-tops became canopies of dense foliage ; from the starlit heavens at night came the mysterious lispings of voices of numberless little feathered wanderers pushing their way northward amid the darkness, guided by some faculty which must ever remain hidden from mortals. Each succeeding morning found new-comers taking their places in the woodland choir, and every thicket was enlivened by glancing wings and merry bird voices. The spell was



broken, and among all the gay revellers none were more conspicuous than the beautiful Prothonotaries. Day by day their numbers rapidly increased, until by April 27 all had apparently arrived. We now found the Prothonotary Warbler to be, in all suitable localities, one of the most abundant and characteristic species. Along the shores of the rivers and creeks generally, wherever the black willow (*Salix niger*) grew, a few pairs were sure to be found. Among the button-bushes (*Cephalanthus occidentalis*) that fringed the margin of the peculiar long narrow ponds scattered at frequent intervals over the heavily timbered bottoms of the Wabash and White Rivers, they also occurred more or less numerously. Potoka Creek, a winding, sluggish stream, thickly fringed with willows, was also a favorite resort; but the grand rendezvous of the species seemed to be about the shores of certain secluded ponds lying in what is known as the Little Cypress Swamp. Here they congregated in astonishing numbers, and early in May were breeding almost in colonies. In the region above indicated two things were found to be essential to their presence, namely, an abundance of willows and the immediate proximity of water. Thickets of button-bushes did indeed satisfy a few scattered and perhaps not over particular individuals and pairs, but away from water they were almost never seen. So marked was this preference, that the song of the male heard from the woods indicated to us as surely the proximity of some river, pond, or flooded swamp, as did the croaking of frogs or the peep of the Hylas. In rare instances, it is true, nests were found several hundred yards away from any water; but such apparent exceptions were in nearly every case explained by unmistakable indications that the place, or its immediate vicinity, had been flooded earlier in the season, probably at the time when the site was selected and the nest built. Owing to the exceeding variability of the water-level in the Western rivers, it is not at all improbable that whole tracts of country where these birds breed may be sometimes left high and dry by the receding element before the eggs are hatched.

Everywhere now, from the willow thickets along the streams and the button-bushes on the pond edges came the songs of numerous males, and occasionally one would appear among the foliage or glance across the open water like a ray of golden light. Little idea can be had from preserved specimens of the wonderful beauty and brilliancy of this bird's plumage when alive. Although at times somewhat hard to discover among the yellowish green of their favor-

ite willows, at others, when clinging against the side of an old log or tree-trunk, the yellow head and breast, turned outward to the light, seemed fairly to glow with color, in contrast with the green moss or dusky wood. On cloudy, lowering days I have been surprised at the effect produced by a male flying across an open space close to the dark water. It was as if a sunbeam had glanced athwart the spot, lighting up everything for a moment, and leaving greater gloom from the contrast after it had disappeared. Again and again have I been tempted into shooting one, which I did not really want, but which seemed far brighter than any I had previously taken; upon picking him up, however, I would find him perhaps no more beautiful than many already preserved.

Mating began almost immediately after the arrival of the females, and the "old, old story" was told in many a willow thicket by little golden-breasted lovers. The scene enacted upon such occasions was not strikingly different from that usual among the smaller birds: retiring and somewhat indifferent coyness on the part of the female; violent protestations and demonstrations from the male, who swelled his plumage, spread his wings and tail, and fairly danced round the object of his affections. Sometimes at this juncture another male appeared, and then a fierce conflict was sure to ensue. The combatants would struggle together most furiously until the weaker was forced to give way and take to flight. On several occasions I have seen two males, after fighting among the branches for a long time, clinch and come fluttering together to the water beneath, where for several minutes the contest continued upon the surface until both were fairly drenched. The males rarely meet in the mating season without fighting, even though no female may be near. Sometimes one of them turns tail at the outset; and the other at once giving chase, the pursuer and pursued, separated by a few inches only, go darting through the woods, winding, doubling, now careering away up among the tree-tops, now down over the water, sweeping close to the surface until the eye becomes weary with following their mad flight. During all this time the female usually busies herself with feeding, apparently entirely unconcerned as to the issue. Upon the return of the conqueror her indifference, real or assumed, vanishes, he receives a warm welcome, and matters are soon arranged between them.

The usual song of the *Prothonotary Warbler* sounds at a distance like the call of the *Solitary Sandpiper*, with a syllable or two added, —

a simple *peet, tweet, tweet, tweet*, given on the same key throughout. Often when the notes came from the farther shore of a river or pond we were completely deceived. On more than one occasion, when a good opportunity for comparison was offered by the actual presence of both birds at the same time, we found that at the distance of several hundred yards their notes were absolutely undistinguishable; nearer at hand, however, the resemblance is lost, and a ringing, penetrating quality becomes apparent in the Warbler's song. It now sounds like *peet, tsweet, tsweet, tsweet*, or sometimes *tweet, tr-sweet, tr-sweet, tr-sweet*. When the bird sings within a few yards the sound is almost startling in its intensity, and the listener feels inclined to stop his ears. The male is a fitful singer, and is quite as apt to be heard in the hot noontide or on cloudy days, when other birds are silent, as during the cool morning and evening hours. The ordinary note of alarm or distress is a sharp one, so nearly like that of the Large-billed Water Thrush (*Siurus motacilla*) that the slight difference can only be detected by a critical ear. When the sexes meet a soft *tchip* of recognition common to nearly all the Warblers is used. In addition to the song above described the male has a different and far sweeter one, which is reserved for select occasions,—an outpouring of the bird's most tender feelings, intended for the ears of his mate alone, like the rare evening warble of the Oven-Bird (*Siurus auricapillus*). It is apparently uttered only while on the wing. Although so low and feeble as to be inaudible many rods away, it is very sweet, resembling somewhat the song of the Canary, given in an undertone, with trills or "water-notes" interspersed. The flight during its delivery is very different from that at all other times. The bird progresses slowly, with a trembling, fluttering motion, its head raised and tail expanded. This song was heard most frequently after incubation had begun.

In general activity and restlessness few birds equal the species under consideration. Not a nook or corner of his domain but is repeatedly visited through the day. Now he sings a few times from the top of some tall willow that leans out over the stream, sitting motionless among the yellowish foliage, fully aware, perhaps, of the protection afforded by its harmonizing tints. The next moment he descends to the cool shades beneath, where dark, coffee-colored water, the overflow of the pond or river, stretches back among the trees. Here he loves to hop about on floating drift-wood, wet by the lapping of pulsating wavelets; now following up some

long, inclining, half-submerged log, peeping into every crevice and occasionally dragging forth from its concealment a spider or small beetle, turning alternately his bright yellow breast and olive back towards the light; now jetting his beautiful tail or quivering his wings tremulously, he darts off into some thicket in response to a call from his mate; or, flying to a neighboring tree-trunk, clings for a moment against the mossy bole to pipe his little strain or look up the exact whereabouts of some suspected insect prize.

This Warbler usually seeks its food low down among thickets, moss-grown logs, or floating débris, and always about water. Sometimes it ascends tree-trunks for a little way like the Black-and-white Creeper, winding about with the same peculiar motion. When seen among the upper branches, where it often goes to plume its feathers and sing in the warm sunshine, it almost invariably sits nearly motionless. Its flight is much like that of the Water-Thrush (either species), and is remarkably swift, firm, and decided. When crossing a broad stream it is slightly undulating, though always direct. Its food consists of insects, generally of such spiders and beetles as are found about water. Audubon positively asserts that he has discovered minute molluscous animals and small land-snails in their stomachs.

The nesting of the Prothonotary Warbler affords the most interesting phase of its life history. Audubon's account of its nest, "fixed in the fork of a small twig bending over the water," seems in the light of our present knowledge open to serious doubts. At least, it is not the mode of nidification used in the places where it is best known at the present day. Mr. B. F. Goss of Neosho Falls, Kansas, first brought to light the fact that in that locality the bird invariably nested in holes of trees or buildings. Since his discovery of the first nest in 1863, others similarly situated have been found by Dr. Palmer and Mr. Robert Ridgway, at the Kiowa Agency, Indian Territory, and at Mount Carmel, Ill. The first nest collected the past season was found by Mr. Ridgway on April 27. It contained four fresh eggs. This was probably an exceptionally early date, as nearly a week elapsed before any other eggs were taken; and, indeed, the greater proportion of a large number collected between May 8 and May 12 were freshly laid. At least forty nests were examined altogether, about one half of which contained eggs. To give an account of all the various situations in which these nests were placed, would entail a

description of nearly every conceivable kind of hole or cavity that can be found in tree-trunks. The typical nesting-site, however, was the deserted hole of the Downy Woodpecker or Carolina Chickadee. The height varied from two to fifteen feet, though the usual elevation was about four. If the cavity was old and broken out, or otherwise enlarged, it was far more apt to be chosen than a neater and newer one close at hand. The stump selected almost invariably stood in or projected over water, although, as above stated, it was oftentimes left high and dry after the eggs were laid.

Of the many exceptions to the above-described typical site, I will here notice only two of the most marked. A nest discovered May 8 was built in a sort of pocket-shaped cavity in the side of a large cypress stump. The hole descended vertically in the inside of the shell-like wall, the central heart of which had crumbled away. Another, found by Mr. Ridgway, was built in an extremely rotten snag which stood on the edge of a road; the eggs or sitting parent could easily be seen by any one riding by. This nest was several hundred yards away from water.

In the construction of the nest the female labors somewhat desultorily. Fresh green moss enters largely into its composition, and although this substance is readily obtained, a week is sometimes consumed in building the simple little affair. Most of the materials are gathered in the immediate vicinity from half-submerged logs or the nearest dry ground. The male almost always accompanies his partner on her trips to and from the nest, making a great show of hunting up choice bits of material, but apparently never succeeding in finding any to his mind. He usually precedes her on her return, enters the hole to investigate the condition of affairs, pops out his golden head to assure her with a soft chirp that all is well within, and then gives way to allow her to enter, clinging against the bark outside to cheer her labors with his song and await her reappearance. Sometimes, however, both birds remain inside together, although how much assistance the male renders in house furnishing I cannot say. Probably his presence is only tolerated, and he is perhaps often accused of being a nuisance.

The shape and size of the nest vary with that of the cavity in which it is placed. When the hole is deep, it is usually filled up to within four or five inches of the entrance. Thus the nest when removed presents the appearance of a compact mass of moss five



or six inches in height by three or four in diameter. When the cavity is shallow, it is often only scantily lined with moss and a few fine roots. The deeper nests are of course the more elaborate ones. One of the finest specimens before me is composed of moss, dry leaves, and cypress-twigs. The cavity for the eggs is a neatly rounded, cup-shaped hollow, two inches in diameter by one and a half in depth, smoothly lined with fine roots and a few wing-feathers of some small bird.

The number of eggs constituting a full set varies to an unusual degree; two nests were found, each of which contained seven eggs, while in another instance a nest, which from its position could not possibly have been molested, had only one, nearly ready to be hatched. Out of fifteen sets of eggs taken, two included seven eggs; three, six; three, five; four, four; two, three; and one, one egg. The average number is probably five or six. Seventeen specimens before me agree pretty well in size and general shape, nearly all being noticeably blunted at the smaller end. Two selected as extreme examples measure respectively  $.73 \times .59$  and  $.67 \times .58$ . The ground-color is clear, lustrous white, with a high polish. Eggs from different sets vary considerably in markings, but two types of coloration seem to prevail. In one, spots and dottings of dull brown with faint submarkings of pale lavender are generally and evenly distributed over the entire surface. In the other, bold blotches of bright reddish brown are so thickly laid on, especially about the larger ends, that the ground-color is in some instances almost entirely obscured.

In the hope of presenting to the reader's mind some slight idea of the general character and surroundings of the locality where the Prothonotary Warblers were found breeding in the greatest abundance, I close with a brief description of a visit, on May 11, to the Cypress Swamp. Towards the middle of the afternoon we reached Beaver Dam Pond, and embarked in an old weather-beaten dugout. Our guide, a half-breed Indian and a most accomplished woodsman, took his station in the stern, and with a vigorous shove upon his long push-pole sent the frail craft well out into the pond. Before us stretched a long, narrow sheet of water hemmed in on every side by an unbroken wall of forest trees. Around the margin grew a fringe of button-bushes, with a sprinkling of tall slender willows, while behind and above them towered the light-green feathery crests of numerous cypresses. The low shores were

in many places flooded with water for a considerable distance back into the woods, to where the land rose in broken ridges and the cypresses gave way to a growth of oaks, black-walnuts, lindens, and numerous other forest trees. The depth of the water, even in the centre of the pond, did not exceed five feet, and over the greater part of its extent rank grasses, yellow water-lilies, and other aquatic plants reared their tall stalks or broad leaves in such profusion, that everywhere, except immediately around the canoe, the eye rested upon what seemed a meadow of waving green. The few acres of comparatively open water were sprinkled with water-lilies (*Nymphaea odorata*) or thickly studded with the delicate, star-shaped blossoms of the *Cabomba caroliniana*, the moss-like stems of which extended in a perfect labyrinth beneath the surface. As we pushed our way through the denser growths, the stems yielded before the bow with a slight rustling sound. Wood Ducks and Hooded Mergansers rose on every side, while their broods of downy ducklings scuttled off among the water-plants, sometimes huddling close together, a dusky mass of bobbing little forms, at others, when closely pressed, separating and diving like water-sprites. Overhead, Buzzards were wheeling in graceful, interminable circlings, while in their nests upon the tops of some gigantic sycamores, a little back from the shore, stood a number of Great Blue Herons, their tall graceful forms boldly outlined against the sky. From the lower depths of the forest came innumerable bird voices,— the slow, solemn chant of the Wood Thrush, the clear, whistled challenge of the Cardinal, the sweet wild notes of the Louisiana Water Thrush, the measured *pter-dle, pter-dle, pter-dle* of the Kentucky Warbler, and the emphatic song of the Hooded Flycatcher. Higher up among the trees Woodpeckers rattled upon dead limbs, a Tanager sang at intervals, the Tufted Titmouse reiterated its monotonous *peto, peto*, and numerous Blue Warblers added their guttural little trills to the general chorus. From all along the pond edges came the Sandpiper-like song of the Prothonotary Warblers. As we advanced, the button-bushes gave way to stretches of black willows, which at the head of the pond formed the exclusive growth over an area of perhaps six acres. This tract had at one time evidently formed part of the pond, for as we pushed our canoe in among the trees we found the water scarcely shallower than in the open portions.

Although the willows grew rather thinly, the spaces between the

living stems were filled with stubs in every stage of decay, and perforated with countless Woodpecker-holes, most of them old, and long since given up by their original tenants. That a locality so favorable in every way had not been overlooked by the Prothonotary Warblers was soon evinced by the presence of the birds on all sides in numbers that far exceeded anything which we had previously seen, and careful search soon revealed a number of nests. Probably not less than twenty pairs were here breeding in close proximity. In the larger holes and among the branches were the nests of a colony of Grackles (*Quiscalus purpureus*), and a few Woodpeckers and Carolina Titmice were also nesting somewhere in the vicinity. As we returned down the pond late in the afternoon the sun was sinking behind the tree-tops. The dying breeze still agitated the crest of the forest, but not a breath rippled the still water beneath. The lonely pool rested in deep shadow, save at its upper end, where the slanting sunbeams still lighted up the group of willows, bringing out their yellowish foliage in strong relief against the darker mass behind. The arches of the grand old woods were filled with a softened, mysterious light, and a solemn hush and silence prevailed, broken only by the occasional hooting of a Barred Owl or the song of some small bird among the upper branches, where the rays of the setting sun still lingered. High in air, over the open space the Buzzards still wheeled and soared on easy wing. Ducks were scurrying about in all directions or plashing down among the lily leaves, and a heavy plunge in shore told where a startled otter had risen and disappeared. As the last rays of sunlight touched the top of a mighty sycamore that raised its towering head above its fellows, the Herons left their rookery and laboriously winged their way overhead to some distant feeding-ground. Long in the writer's memory will linger that last glimpse of beautiful Beaver Dam Pond.

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#### NOTES ON BIRDS OBSERVED AT MOUNT CARMEL, SOUTHERN ILLINOIS, IN THE SPRING OF 1878.

BY ROBERT RIDGWAY.

ALTHOUGH the spring seemed to have opened earlier than usual, the birds were, strangely enough, behindhand in their northward

migration, few of the truly migratory species being there on our arrival,—the 17th of April. At that date the woods were in nearly full leaf, the fruit-trees were nearly done blossoming (several kinds entirely so), and the wheat waist-high. Still there were no Catbirds, Orioles, Kingbirds, nor Tanagers, all of which ordinarily reach Mount Carmel by that time. It was nearly a week before these birds made their appearance; but after the full tide of migration set in there was little difference from other seasons, except the great dearth of transient Warblers, all of which were more or less rare, while many kinds, usually common, or even abundant, were not to be seen at all. Thus, there were no Black-throated Blue, Black-poll, Bay-breasted, Black-capped Green, nor Orange-crowned Warblers; only a single individual each of the Golden-winged, Cape May, Black-throated Green, Chestnut-sided, and Worm-eating Warblers was noticed, while other migratory species were unusually rare. No specimens of the Black-and-yellow Warbler were detected until the 25th of May, when a pair were shot in the Cypress Swamp. The following were the most abundant species of this family, named, approximately, in the order of their numbers: *Dendroeca cærulea*, *Setophaga ruticilla*, *Oporornis formosus*, *Protonotaria citrea*, *Siurus auricapillus*, *Myiodiotes mitratus*, *Helminthophaga pinus*, *H. peregrina* (migratory), *Siurus motacilla*, *Dendroeca dominica albilora*, *D. æstiva*, and *Geothlypis trichas*.

**Thryomanes bewicki.** BEWICK'S WREN.—Very abundant, but confined entirely to dooryards. It was estimated by Mr. Brewster and myself that in Mount Carmel there was one pair of this Wren to about every two dwellings! The House Wren (*Troglodytes ædon*) is entirely unknown there, the present species wholly replacing it.

?? **Helinaia swainsoni.** SWAINSON'S WARBLER.—In the Cypress Swamp a bird was several times noticed by Mr. Brewster and myself, which we both agreed must be this species. It was well seen on several occasions, and its song heard, while one specimen was shot, but, unfortunately, could not be found. It appeared to have habits somewhat similar to those of the Prothonotary Warbler, with a song more like that of a Water Thrush (*Siurus motacilla*), but weaker, more sprightly, and more varied.

**Helminthophaga pinus.** BLUE-WINGED YELLOW WARBLER.—Very abundant in old clearings in the bottom-lands.

**Dendroeca dominica albilora.** YELLOW-THROATED WARBLER.—Common enough, but the most difficult to collect of all the Warblers, on account of its partiality to the tops of the tallest sycamore-trees, practically beyond the reach of small shot. The song strikingly resembles that

of the Indigo Bird in its tone, but is easily recognized from its peculiar modulation.

**Oporornis formosus.** KENTUCKY WARBLER. — One of the most abundant of the smaller birds, far exceeding even the Golden-crowned Thrush in numbers. In its general habits and manners it is much like the latter species, keeping on or near the ground. The nest is exceedingly difficult to find, since it is almost impossible to flush the female directly from it.

**Myiodiodes mitratus.** HOODED WARBLER. — Also an abundant species in certain parts of the bottoms, but only noticed in those localities where the switch cane (*Arundinaria tecta*) forms more or less of the undergrowth, over which trails the rough, bright green stems and foliage of a species of *Galium*, and, but less frequently, a low-growing or trailing *Smilax* (probably *S. walteri*). The nest is built with scarcely any attempt at concealment, in a low bush, from one to two feet from the ground.'

**Stelgidopteryx serripennis.** ROUGH-WINGED SWALLOW. — More abundant than *Cotyle riparia*, but, so far as this locality is concerned, of entirely similar nesting habits. Each, however, generally breeds in colonies by itself.

**Collurio ludovicianus.** LOGGERHEAD SHRIKE. — Common. Although in previous papers I have given the white-rumped form (*excubitoroides*) as the Shrike of this portion of the country, all the specimens obtained during my recent visit were perfectly typical of the Southern race.

**Pyranga æstiva.** SUMMER REDBIRD. — Abundant, but almost entirely confined to the more open and dry woods of the uplands, where very common along the roadsides or among the oak or hickory trees standing in immediate proximity to farm-houses. Quite similar to *P. rubra* in general manners, but notes much stronger and more emphatic, the song far finer.

**Poœetes gramineus.** GRASS FINCH. — Breeds, but is rather uncommon.

**Chondestes grammaca.** LARK FINCH. — Common summer resident, partial to roadsides and fallow fields.

**Peucaea æstivalis.** BACHMAN'S FINCH. — Extremely local, and quite rare. Confined to old fields where dead trees are left standing.

**Euspiza americana.** BLACK-THROATED BUNTING. — Probably the most abundant of the *Fringillidæ*, every meadow and grain-field being inhabited by a number of pairs. Most partial to clover-fields. Known usually as the "Little Field Lark," but, on account of its peculiar songs, sometimes as the "Dick-cissel."

**Pipilo erythrophthalmus.** TOWHEE; CHEWINK. — Abundant. Specimens obtained are absolutely typical of the species, none showing the least approach to *P. arcticus*.

**Sturnella magna.** MEADOW LARK. — Very abundant. The Larks of this district do not tend in any of their characters toward *S. neglecta*.



**Eremophila alpestris.** HORNE LARK. — Abundant in suitable localities. Found mostly on commons and about fallow fields.

**Cyanocitta cristata.** BLUE JAY. — One of the most numerous and generally distributed of all birds; also probably the least wary. As an evidence of these facts, it may be mentioned that the writer killed five Blue Jays in two successive shots, without the expectation of killing more than one at either time.

**Myiarchus crinitus.** GREAT-CRESTED FLYCATCHER. — The most abundant of the Flycatchers, and quite familiar, often breeding in boxes put up for the Martins and Bluebirds.

**Antrostomus carolinensis.** CHUCK-WILL'S-WIDOW. — A single specimen seen flying with some Night Hawks (*Chordeiles popetue*) late one evening, about the 20th of April. It is not an uncommon species, its notes being frequently heard. Strange to say, however, neither this species nor the Whippoorwill was once heard during our visit of six weeks' duration.

**Coccyzus americanus.** YELLOW-BILLED CUCKOO. — Extremely abundant, it being not unusual to hear the notes of half a dozen or more at the same time. Outnumbers *C. erythrophthalmus* in the proportion of about ten to one. Eggs of both species were found in the same nest!

**Melanerpes erythrocephalus.** RED-HEADED WOODPECKER. — Exceedingly abundant and very tame. By far the most numerous species of the family.

**Falco communis naevius.** DUCK HAWK. — This is by no means a rare bird in the heavy timber of the river bottoms. Three nests were found in the immediate vicinity of the town, and no doubt more could have been found in localities not explored. All were placed in cavities in the top of very large sycamore-trees, and were inaccessible. One of these trees was felled, however, the peculiar character of the base and decided inclination of the trunk from the perpendicular rendering this a comparatively easy matter. The swollen base of this tree was twenty-six feet in circumference, the cylindrical portion of the trunk itself, some seven feet above, being sixteen and one half feet around. The base was hollow, and had been reduced by fire to an average thickness of less than a foot, while the axis of the tree leaned some thirty degrees from the perpendicular. It therefore required only the severing of the wall on the side of tension, for a distance of four or five feet, to destroy the equilibrium of the tree, which soon came down with a terrific crash. Measurements with a tape-line showed the nest to have been eighty-nine feet from the ground, its location being a shallow cavity, caused by the breaking off of the main limb, the upper part of which projected over sufficiently to form a protection from the sun and rain. This limb was four feet in diameter; the total height of the tree, although the whole top had been blasted by storms, was one hundred and fifteen feet, so that its original height must

have been not less than one hundred and fifty feet. Four full-feathered young were taken from the nest, only one of them being killed by the fall, while one was entirely uninjured. The female parent had been shot a few days before.

**Ictinia mississippiensis.** MISSISSIPPI KITE. — This species is much less common in the vicinity of Mount Carmel than in the prairie districts. Several were seen about the river, however, as well as on the border of Washburne Pond, in the Cypress Swamp.

**Catharistes atratus.** BLACK VULTURE. — Several solitary specimens were seen in the Cypress Swamp, where it was evident from their actions they were breeding.

**Ibis alba.** WHITE IBIS. — An addition to the fauna of the State. A flock of seven or eight individuals, all in the gray plumage of the young, seen flying along the river about the 8th of May.

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## THE NEST AND EGGS OF THE YELLOW-BELLIED FLY-CATCHER (*EMPIDONAX FLAVIVENTRIS*).

BY H. A. PURDIE.

OF the breeding habits of this bird published accounts are somewhat meagre and unsatisfactory. In Baird, Brewer, and Ridgway's "History of North American Birds," Dr. T. M. Brewer states that he found a nest of this species at Grand Menan placed in the fork of a low alder-bush. It was built loosely of soft bark-strips, lined with light-colored grass, and much resembled the nest of the common Indigo Bird. Other nests collected at Halifax were in low bushes and composed of "stubble." The eggs were chalky-white, unspotted, and more oblong than those of the Least Flycatcher (*Empidonax minimus*). Eggs, however, found by Mr. G. A. Boardman at Calais, Me., were dotted with reddish-brown. Dr. Coues, in "Birds of the Northwest," simply says: "The egg of *flaviventris* is pure white, unmarked, and not distinguishable from that of *E. minimus*." But he writes me, "I know nothing of the nest and eggs of *E. flaviventris*, but what I have read." In "Ornithology of the Clarence King Survey" (Vol. IV, p. 544) Mr. Ridgway, in a foot-note to the Western Yellow-bellied Flycatcher (*E. difficilis*), remarks: "It is with little hesitation that we consider this bird as distinct specifically from *E. flaviventris*. Not only are there very conspicuous and constant differences in proportions and colors (especially the

former), but numerous observers have noticed remarkable and important peculiarities in the nesting habits, the present species almost invariably building its nest in cavities, either of stumps, trees, or rocks, or on beams inside of buildings, — a habit not yet noticed in *E. flaviventris*, nor, indeed, in any other species of the genus." That at least the nesting habits of the two are not always different, I think the following will show.

On a collecting trip made by Mr. Ruthven Deane and myself to Houlton, Aroostook County, Me., during the second and third weeks in June of this year, we were fortunate enough to secure the much-desired nest and eggs of the Yellow-bellied Flycatcher. For its possession we are under obligations to Robert R. McLeod, Esq., and to one of his collectors, Mr. James Bradbury, who discovered the nest, both surrendering all claim to the prize, but desirous that a description should be given for the benefit of all interested.

Mr. Bradbury informed us that he had found, on June 15, a nest unknown to him with one egg. On the 18th he conducted us to the edge of a wooded swamp, and, pointing to the roots of an up-turned tree, said the nest was there. We approached cautiously, and soon saw the structure and then the sitting bird, which appeared to be sunken in a ball of green moss. Our eager eyes were within two feet of her, thus easily identifying the species, when she darted off; but, to make doubly sure, Mr. Deane shot her. There was no mistake; we at last had a genuine nest and eggs of the Yellow-bellied Flycatcher. A large dwelling it was for so small and trim a bird. Built in and on to the black mud clinging to the roots, but two feet from the ground, the bulk of the nest was composed of dry moss, while the outside was faced with beautiful fresh green mosses, thickest around the rim or parapet. The home of the Bridge Pewee (*Sayornis fuscus*) was at once suggested. But no mud entered into the actual composition of the nest, though at first we thought so, so much was clinging to it when removed.\* The lining was mainly of fine black rootlets, with a few pine-needles and grass-stems. The nest gives the following measurements: depth inside, one and one half inches; depth outside, four and a quarter inches; circumference inside, seven and a quarter inches.

The eggs, four in number, were perfectly fresh, rounded oval in

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\* Dr. J. G. Cooper has said that the Western bird uses mud for the shell of its nest. He has, however, written me that he was mistaken, and that earth is not employed.

shape, and of a beautiful rosy-white tint, well spotted with a light reddish shade of brown. They closely resemble the eggs of *E. difficilis* I have from California, and other sets of eggs of that bird I have lately seen. The nest and contents are now in Mr. Deane's collection. It will be seen that the whole affair was not unlike the descriptions given of the nest and eggs of *E. difficilis* by Dr. J. G. Cooper of Haywood, Cal.

The nests and eggs mentioned by Dr. Brewer differ so much from those here described that it seems reasonable to suppose that there was some error of identification in the nests found by him as cited above, so great is the variation presented between his nests and eggs and ours; for it seems hardly probable that this Flycatcher should be so very inconstant, both as to the materials and situation of the nest, and as to whether it lays spotted or unspotted eggs. In the National Museum at Washington there are three sets of eggs accredited to *E. flaviventris*. The eggs of one of these sets are spotted, those of the other two are not, and these latter are strongly suggestive of those of the Least Flycatcher; so write me Messrs. Robert Ridgway and H. W. Henshaw.

As no accounts of the breeding of *E. difficilis* have yet appeared in any ornithological works, the following references to the nesting habits may be useful: Proc. Cal. Acad. Sci., Vol. VI, p. 199, Dec., 1875; Am. Nat., Vol. X, p. 93, Feb., 1876; The Naturalist and Fancier, Grand Rapids, Mich., Vol. I, p. 43, Nov., 1877.

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## A LIST OF BIRDS OBSERVED AT COOSADA, CENTRAL ALABAMA.

BY NATHAN CLIFFORD BROWN.

COOSADA is a little station on the North and South Alabama Railroad, ten miles north of Montgomery. The population, consisting of planters and their attendant negroes, is sparse, and nowhere attains sufficient density to produce a regular village. The country is rather flat, occasionally rolling slightly, and in its uncultivated portions is mostly covered with a dense growth of pines of various species. There are a few dry groves of oak and "black jack," but the hard-wood trees are principally confined to the creek bottoms and margins of swamps, where they flourish in the typical Southern luxuriance and variety, interspersed with cane and overrun by

numerous parasitical vines. Within two miles of the railway station runs the Alabama River, affording, with its parent streams, the Coosa and Tallapoosa, and its tributary creeks and "branches," the most productive country for the ornithologist.

The following list embodies the results of my observations at Coosada, between the dates of January 21 and April 30, 1878, with the hearty and efficient co-operation of Mr. J. H. Bond, of Portland, during the first nine weeks of my stay. It has not been prepared with a view to presenting a complete catalogue of the birds inhabiting even the limited extent of country under consideration. Such was the remarkable lateness of the migration, that additional species were detected up to the very day of my departure, and I have no doubt that others subsequently made their appearance. Whether further investigations in the locality would prove the occurrence there of such missing members of the suppositive local fauna as *Cyanospiza ciris*, *Helmitherus vermivorus*, *Helminthophaga pinus*, etc., is, therefore, to some extent a matter of doubt.

1. **Turdus migratorius**, L. ROBIN. — An abundant winter visitor, becoming uncommon towards the middle of April, and disappearing before the end of that month. The males were songless during their stay.

2. **Turdus mustelinus**, Gm. WOOD THRUSH. — Arrived April 13 in full song. They were never very common, inhabited only swampy thickets and hard-wood groves, and were extremely shy.

3. **Turdus pallasi**, Cab. HERMIT THRUSH. — Common and generally distributed up to within a few days of my departure. I was surprised, in this southern latitude, to find that the males became musical as spring advanced. On March 16 I heard the first song, and during the following three weeks it was one of the commonest wood sounds.

4. **Mimus polyglottus**, (L.) Boie. MOCKING-BIRD. — Abundant resident. I heard the first song February 25, — a week after the birds began to sing in Montgomery. Two weeks later I observed several pairs desultorily at work on their nests, but, with the exception of a single complement found on the 12th of April, discovered no eggs until about April 21.

After a brief sojourn at Coosada, I came to regard this bird with intense dislike, on account of its extreme quarrelsomeness. Those in the immediate vicinity of my lodgings were almost constantly employed in driving other birds from the neighborhood. Upon one occasion, a Robin sitting quietly in a tree over my head was so fiercely attacked by a Mocking-bird that he fell almost lifeless at my feet. A friend rescued him from further injury, and after the bird revived gave him his liberty; he had scarcely flown a dozen yards, however, before he was again savagely set upon by a Mocking-bird, and escaped only through his greater power of wing.



5. **Mimus carolinensis**, (L.) Gray. CATBIRD. — Arrived April 13. Did not become common, and was not heard to sing.

6. **Harporhynchus rufus**, (L.) Cab. BROWN THRUSH. — A common resident, well known by its *alias* "Thrasher." The males began to sing about the 1st of April, and by the 25th of that month the females had deposited their eggs.

7. **Sialia sialis**, (L.) Haldeman. BLUEBIRD. — Common resident. During the winter they were particularly abundant, sometimes associating with the various small Finches and Warblers, sometimes forming small flocks by themselves. There was no regularity in the breeding of different pairs: two nests examined on April 22 contained respectively four fresh eggs and a brood of young several days old.

8. **Regulus calendula**, (L.) Licht. RUBY-CROWNED KINGLET. — Numerous during the entire extent of my stay. I first heard their song on the 8th of March, but after that date the sweet, fervid little strain filled the woods everywhere.

9. **Regulus satrapa**, Licht. GOLDEN-CRESTED KINGLET. — Common winter visitant. Unlike the preceding species, which was often met with singly, this bird was invariably found associating with others of its kind, and with Creepers, Titmice, and Nuthatches. Disappeared about the first week in April.

10. **Poliophtila cærulea**, (L.) ScL. BLUE-GRAY GNATCATCHER. — Arrived March 25, and soon became very common. They seemed to affect no particular kind of growth, but were everywhere equally abundant. They are most earnest and persevering songsters: in their frequent practice of singing on the wing, they fairly rival the Bobolink's ardor, and had their melodious, "mocking little strain" (as Mr. Brewster has called it) somewhat more volume, it would certainly be an unusually fine performance.

11. **Lophophanes bicolor**, (L.) Bp. TUFTED TITMOUSE. — A common resident, but of quite irregular occurrence during the winter. At times, during that season, none were to be found for several days, after which they would again make their appearance, generally in company with the social Chickadees, Nuthatches, etc. About February 20 they became less numerous, and were soon met with only in pairs. I did not succeed in finding a nest.

12. **Parus carolinensis**, Aud. CAROLINA TITMOUSE. — Not a very common resident. Instead of the tame, unsuspicious bird I had been led to expect, they generally proved very shy indeed. More than once they completely baffled all my attempts at capture. The notes of this species have generally been described as less powerful than those of its Northern prototype. According to my experience, this is true only to a certain extent; certainly not so of the familiar *chick-a-dee-dee*, which was invariably uttered by the Southern bird as loudly and emphatically as I have ever heard it at the North. I failed to find a nest, although the birds appeared to be engaged in building about the second week in April.

13. **Sitta carolinensis**, (Gm.) Lath. WHITE-BELLIED NUTHATCH. — Rather uncommon during the winter, and occasionally seen or heard up to the time of my departure. They exhibited a preference for the pine woods. The peculiar song of the male I first heard about the middle of March.

14. **Sitta pusilla**, Lath. BROWN-HEADED NUTHATCH. — An abundant resident. In the winter, when they were particularly numerous, they associated in bands of from six to twenty individuals, and were found everywhere, — in the tops of the tallest forest trees and amongst the scattered pine saplings which have sprung up in once cultivated fields. They were always full of life and activity, not only destroying their insect prey with great industry, but frequently chasing each other about in pure excess of vitality. I do not think I ever saw one employed in silence for a minute at a time. While busily in search of food they have a subdued, conversational chatter which almost exactly resembles the notes usually uttered by the Goldfinch when similarly employed. Rather curiously, the two species have another call in common: the most frequent cry of the Nuthatch is remarkably like the Goldfinch's meditative *béyrbéh*, — indeed, I have sometimes mistaken one for the other. Both sexes of the present bird have several other call-notes, all of which are characterized by a certain reedy harshness rendering them quite unlike the usual utterances of the two Northern species of the genus.

About the beginning of March the birds began to separate into pairs, and by the middle of that month had generally selected their nesting sites and commenced the work of excavating. Rotten pine stubs afforded the favorite situations, and nine tenths of the nests I found were within six feet of the ground. I opened nests at intervals up to the time of my departure, and found them occupied by one, sometimes by both of the owners, but met with no eggs until April 22; these (four in number) were placed in a natural cavity in a telegraph-pole. Another nest examined on the same day was not quite ready for the eggs.

15. **Certhia familiaris**, L. BROWN CREEPER. — Rather common during the winter, associating with other small birds of similar habits. They were most numerous about the third week in March, and at this time sometimes went in flocks by themselves, occasionally as many as a dozen together. On the advent of warm weather, in April, they gradually disappeared.

16. **Thryothorus ludovicianus**, (Lath.) Bp. GREAT CAROLINA WREN. — Common resident, inhabiting only the tangled growth of swamps and water-courses. Generally found in small flocks during the winter. They were mated by the last of February, but, apparently, were not engaged in nest-building until at least a month later. The males sang through the winter, but not so frequently as after mating.

17. **Thryothorus bewicki**, (Aud.) Bp. BEWICK'S WREN. — Only two specimens taken: one by myself, February 7, amongst the débris of

fallen trees, in a partially cleared field ; one by Mr. J. H. Bond, February 16, by the roadside, in piny woods ; both silent, and much less active than the preceding species.

18. **Anorthura troglodytes** var. **hyemalis**, (Vieill.) Coues. WINTER WREN. — Not very common winter visitant, and almost invariably seen in company with the Carolina Wrens. It was the first of the winter birds to disappear. None were met with after about February 20.

19. **Cistothorus stellaris**, (Licht.) Cab. SHORT-BILLED MARSH WREN. — I captured a single pair in an old rice-field, March 21.

20. **Anthus ludovicianus**, (Gm.) Licht. TITLARK. — Common during the winter. Stragglers remained till the last of March.

21. **Mniotilta varia**, (L.) Vieill. BLACK-AND-WHITE CREEPER. — First seen on March 13 ; soon became common and generally distributed. The males sang from the time of their arrival.

22. **Parula americana**, (L.) Bp. BLUE YELLOW-BACKED WARBLER. — Half a dozen shy individuals met with, the first on March 25.

23. **Protonotaria citrea**, (Bodd.) Bd. PROTHONOTARY WARBLER. — Arrived April 12, in full song. After April 20, specimens were seen almost every day, but they never became common. Their haunts were exclusively swamps and the dense hard-wood growths of the water-courses. I found them always active, restless, and noisy. The song is stridulous and piercing, and suggests that of the Black-and-white Creeper, but is more detached and much more strongly accented ; it is indicated very well by the syllables, *eh-wiss'*, *eh-wiss'*, *eh-wiss'*, *eh-wiss'*, *eh-wiss'*, *eh-wiss'*, *eh-wiss'*. A female dissected April 23 contained eggs almost ready for deposition ; no nests, however, were found.

24. **Helminthus swainsoni**, (And.) Bp. SWAINSON'S WARBLER. — On April 12, while forcing my way through the dark, rank forest which lies about the source of Coosada Creek, I caught the final notes of an unknown song uttered close at hand. Instantly seating myself on a fallen tree, I awaited its repetition. The woods immediately about me were quite dry and comparatively deserted by birds, but along the neighboring creek many Vireos, Thrushes, and Swamp-Warblers were producing such a babel of sounds that I feared the voice of my unknown songster might escape me. After the lapse of a few minutes, however, a bird emerged from a thicket within a few yards of me, where he had been industriously scratching amongst the fallen leaves, flew into a small sapling, and gave utterance to a loud, ringing, and very beautiful song. Seen in the dim light of the woods, he bore a decided resemblance to the Louisiana Water Thrush, and his song might almost have passed for an exceptional performance by that bird ; but I at once suspected his true identity, and in a few seconds held in my hand the lifeless body of a male Swainson's Warbler.

During the succeeding nine days I repeatedly and most carefully searched this tract of woods and other localities apparently equally favor-

able, without detecting additional specimens. Finally, April 22, while exploring a slough near the union of the Coosa and Tallapoosa Rivers, I met with two more males. Piloted by their song, I readily approached them, but, unfortunately, lost one, badly wounded, in the impenetrable cane.

I was impressed by the absorbed manner in which this bird sings. Sitting quietly upon a limb of some small tree, he suddenly throws back his head and pours forth his notes with the utmost fervor and *abandon*. During his intervals of silence he remains motionless, with plumage ruffled, as if completely lost in musical reverie.

25. *Helminthophaga celata*, (Say) Bd. ORANGE-CROWNED WARBLER. — Only two specimens noted. My attention was attracted to the first in a cluster of small oak-trees by the roadside, by his loud call-note, which, to my ear, was indistinguishable from that of the Cardinal Red-bird. This was on February 12. The second specimen I startled from a swampy thicket, April 15.

26. *Dendroæca æstiva*, (Gm.) Bd. YELLOW WARBLER. — Arrived April 26, in song. But few seen.

27. *Dendroæca cærulescens*, (L.) Bd. BLACK-THROATED BLUE WARBLER. — A single male found singing in thick, swampy woods, April 26.

28. *Dendroæca coronata*, (L.) Gr. YELLOW-RUMPED WARBLER. — Very numerous up to about the middle of April. Stragglers were occasionally seen towards the end of the month. The males began to sing on April 12.

29. *Dendroæca discolor*, (Vieill.) Bd. PRAIRIE WARBLER. — Rather common after March 27, frequenting the edges of swampy woods. The ovary of a female dissected about the middle of April was but slightly developed, and I observed no signs of nest-building during my stay.

30. *Dendroæca dominica*, (L.) Bd. YELLOW-THROATED WARBLER. — A single male observed March 13; no more seen until after March 22, after which they were not uncommon up to April 4. At this date all disappeared, and for nearly three weeks none were to be found. During the week before my departure I met with two or three solitary males. I saw no females. Although generally frequenting the dry pine woods, this bird occasionally visits swampy growths of deciduous trees.

31. *Dendroæca palmarum*, (Gm.) Bd. YELLOW RED-POLL WARBLER. — Of irregular occurrence during the entire extent of my stay. Specimens taken in the winter and early spring represent the newly separated form *hypochrysea*; those taken later, the variety *palmarum*. On April 13 the males began their simple song, and thereafter both sexes were more uniformly and abundantly distributed.

32. *Dendroæca pinus*, (Wils.) Bd. PINE-CREEPING WARBLER. — A very abundant resident. For the first three or four weeks of my stay I found them exclusively in the fields, forming large flocks with Bluebirds and several kinds of Sparrows; and it was not until the latter part of



February that they frequented the woods commonly. The females deposited their eggs about the last of March, judging from the appearance of specimens dissected at that time. Young were flying generally by April 27.

Throughout the six weeks of winter which I spent at Coosada the Pine Warblers were uninterruptedly tuneful. No other winter birds sang so continuously ; even the Carolina Wrens and Tufted Titmice were often chilled into silence on raw, sunless days in February ; but, however cold (and midwinter in Alabama is much less tropical than is popularly supposed, frost often crusting the ground, and ice skimming ponds and sluggish streams), I never failed to hear the notes of these indefatigable little songsters.

33. **Siurus motacilla**, (Vieill.) Coues. LARGE-BILLED WATER THRUSH. — Abundant after March 13, in swampy localities.

34. **Oporornis formosus**, (Wils.) Bd. KENTUCKY WARBLER. — Arrived April 9, and soon became common, frequenting the same places as the preceding species. I did not find them the active bird they have generally been described, but rather leisurely in their movements. Nor do they, as has been asserted, always *walk* when upon the ground, but frequently move about by the hopping, or rather jumping, motion common to most small birds. They were apparently not breeding at the time of my departure.

35. **Geothlypis trichas**, (L.) Cab. MARYLAND YELLOW-THROAT. — On February 7, Mr. Bond reported having seen a solitary male in a dense swamp ; but it was not until the 5th of March that the species appeared in numbers. Thereafter they were common during my stay.

36. **Icteria virens**, (L.) Bd. YELLOW-BREASTED CHAT. — Arrived April 20 ; became common a week later.

37. **Myiodioides mitratus**, (Gm.) Aud. HOODED WARBLER. — Rather the most numerous summer resident of this family. The males arrived March 28 ; the females, about two weeks later. A female taken April 22 was on the point of laying.

38. **Setophaga ruticilla**, (L.) Sw. REDSTART. — First seen April 19. Not very common. No females observed.

\* 39. **Pyranga rubra**, (L.) Vieill. SCARLET TANAGER. — But one specimen observed ; a female, in swampy woods, April 25.

40. **Pyranga æstiva**, (L.) Vieill. SUMMER REDBIRD. — First specimen noted March 31 ; became common April 8. Apparently not breeding at the time of my departure. Found almost exclusively in pine woods.

(To be continued.)



## DESCRIPTIONS OF THE FIRST PLUMAGE IN VARIOUS SPECIES OF NORTH AMERICAN BIRDS.

BY WILLIAM BREWSTER.

## IV.\*

78. *Agelæus phœniceus.*

*First plumage:* female. Above dark seal-brown: every feather of the crown, nape, and interscapular region, with the greater and middle wing-coverts, primaries, secondaries, and tertiaries, edged and tipped with brownish-fulvous. Beneath light yellowish-brown, thickly and broadly streaked everywhere with dull black. Sides of throat and head, including a considerable space around the eye, bare skin (of a brownish orange-color in the dried specimen), with a few scattering pin-feathers. From a specimen in my collection obtained at Cambridge, Mass., June 24, 1872. Males in first plumage before me differ but little from the individual above described. All have the bare spaces on the sides of the throat, although these are probably feathered before the first moult is begun. A male in transitional dress (collected at Ipswich, Mass., July 15, 1874), with the head fully feathered, has the throat dull brownish-yellow, with a strong tinge of the same color on the breast. The wing and tail feathers are renewed during the first moult.

*Autumnal plumage:* young male. Crown dark brown, with a faint rusty edging upon each feather; nape brownish-yellow, with a rusty tinge, finely spotted with dark brown; interscapular region, and a broad outer edging upon the secondaries and tertiaries, deep dull reddish-brown, each feather having a broad V-shaped mark of dull black. Rump glossy black, every feather edged with fulvous ashy; shoulder dull red with black spotting; middle coverts fulvous; greater coverts tipped with the same color. Superciliary stripe brownish-yellow. A space anterior to and beneath the eye dusky black. Entire under parts black, each feather upon the abdomen edged broadly with pale ashy, elsewhere with yellowish-brown. The light edging of the feathers gives the under parts a conspicuously scutellate appearance. From a specimen in my collection taken at Cambridge, Mass., October 6, 1876. This plumage (although not to my knowledge previously described by writers) is the characteristic one of the young in autumn. I am unable to state if the adult male retains his uniform black coloring at all seasons. A remarkable variation from the typical plumage is afforded by a fine adult male in my cabinet, which has a broad

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\* For Parts I, II, and III, see this volume, pp. 15-23, 56-64, 115-123.

crenate patch of pale yellow tinged with rose-color upon the breast. Nor is this specimen unique, for I have seen several others with a similar but less conspicuous mark. It probably represents an exceptionally high condition or phase of ornamentation, like the commoner one of scarlet or yellow wing-markings, in the Scarlet Tanager (*Pyrranga rubra*). Very old females of *A. phoeniceus* have the throat a delicate peach-color; illustrated by several specimens in my cabinet from Nantucket and Ipswich, Mass.

#### 79. *Icterus baltimore*.

*First plumage*: Top of head, nape, and interscapular region brownish-olive; wing-bands pale fulvous; rump, breast, anal region, and crissum olivaceous-yellow; throat dull yellow; abdomen pale buffy-yellow; patches of ash on the sides. From a specimen in my collection shot in Cambridge, Mass., July 18, 1874. Autumnal adults have the orange-red richer and clearer than in spring, and the wing-quills much more broadly and conspicuously edged with white. Neither wing nor tail feathers are changed during the first moult.

#### 80. *Scolecophagus ferrugineus*.

Several young birds of both sexes shot at Upton, Me., August 5, 1873, have apparently nearly completed the first moult; but one, a male, has the head still covered with the feathers of the first plumage, which are of a uniform plumbeous color. All are moulting the wing and tail feathers. In each specimen a worn central pair of rectrices projects about three inches beyond the others, which are of a uniform length, and evidently just sprouting. Other individuals seen at the same time were conspicuously characterized in the same way, all presenting, when flying, the appearance of birds with long forked tails, the elongated central feathers being slightly spread apart.

#### 81. *Quiscalus purpureus*.

*First plumage*: male. Uniform dark plumbeous, darker above, lighter and with a faint brownish edging on the feathers beneath. Sides of throat and a large space around the eyes completely bare of feathers. From a specimen in my collection obtained at Upton, Me., June 22, 1873. Both wing and tail feathers are replaced during the first moult.

#### 82. *Tyrannus carolinensis*.

*First plumage*: male. Above uniform dark sooty-brown, with a scarcely appreciable lighter edging on the feathers of the nape. No concealed red on the crown. Wing-bands yellowish-white. Breast soiled white, with a band of ashy-white across the breast. From a specimen in my collection shot at Upton, Me., July 24, 1872.

#### 83. *Sayornis fuscus*.

*First plumage*: female. Crown and nape dark sooty-brown. Rest of

upper parts brownish-olive, shading into reddish-olive on the rump. Wing-bands and tips of rectrices ferruginous; secondaries edged with yellowish-olive. Throat, breast, and sides olivaceous-drab, darkest on sides of breast. Abdominal and anal regions soiled white, with a yellowish tinge. From a specimen in my collection taken at Cambridge, Mass., July 13, 1874.

**84. *Contopus borealis*.**

*First plumage*: male. Above olivaceous-plumbeous, darkest upon the crown; wing-bands ferruginous; secondaries edged with pale fulvous. Sides of throat, breast, and body dark plumbeous, with a brownish tinge; central line from base of bill to crissum — partly interrupted upon the breast by the encroachment of the darker color of the sides — strong creamy-buff. Lower mandible *black*, with a limited area of brownish-orange at the base. From a specimen in my collection shot at Rye Beach, N. H., July 24, 1872. Autumnal specimens in my collection have the lower mandible black, the under parts much more strongly tinged with yellow than the adult; and the wing-coverts faintly tipped with ferruginous.

**85. *Contopus virens*.**

*First plumage*: male. Above olive, with a brownish cast, the feathers of the crown and interscapular region with a faint edging of pale fulvous, those upon the nape having a much broader one of dull ash, producing a well-defined band or collar. Wing-bands light reddish-brown. Beneath, with sides of throat, breast, and body, light olivaceous-ash; rest of under parts pale sulphur-yellow. From a specimen in my collection taken at Upton, Me., August 8, 1874. The young in autumnal plumage differ from adults in having the wing-bands pale fulvous, the under parts of a slightly deeper yellow.

**86. *Empidonax acadicus*.**

*First plumage*. Above nearly pure olive, with indistinct narrow transverse bands of darker. Wing-bands pale reddish-brown. Under parts soiled yellowish-white, with an olivaceous cast on the sides of the breast. From a specimen in my collection shot by Dr. J. M. Wheaton, at Columbus, Ohio, June, 1876.

**87. *Empidonax pusillus trailli*.**

*First plumage*: male. Above olive-brown, the feathers of the crown with darker centres. Wing-bands light reddish-brown. Throat, breast, and sides ashy, tinged with olive upon the breast and sides. Abdomen, anal region, and crissum pale sulphur-yellow. Distinguishable from *E. acadicus* in first plumage by the darker color of the upper parts, especially of the crown, and by the entire absence of the narrow transverse bands upon the back. From a specimen in my collection shot at Upton, Me., July 21, 1874.

**88. Empidonax minimus.**

*First plumage:* male. Similar to the adult, but with a stronger olive cast, and a faintly indicated collar of ashy-brown across the nape. Wing-bands light reddish-brown. Beneath almost precisely similar to the adult, with perhaps a slightly stronger yellowish cast upon the abdomen and crissum. Distinguishable from *E. trailli* and *E. acadicus* in corresponding stages by the decidedly paler and less yellowish under parts; especially by the nearly clear ashy on the sides of the breast. From a specimen in my collection taken at Cambridge, Mass., July 2, 1872. Other specimens in first plumage before me differ little from the one above described, but *autumnal specimens*, singularly enough, are much yellower below and more olivaceous above.

**89. Empidonax flaviventris.**

*First plumage:* male. Above uniform yellowish-olive. Beneath dull yellow, with a brownish cast, tinged strongly with olive upon the throat, breast, and sides. Wing-bands brownish-yellow. Altogether very similar in general appearance to the adult. From a specimen in my collection shot at Upton, Me., August 4, 1874.

**90. Chordeiles virginianus.**

*First plumage.* Above dull black, irregularly marbled everywhere with reddish fawn-color and pale rusty. All the feathers are tipped, edged, and barred with the lighter colors, the black appearing for the most part in subterminal spots or blotches. The primaries (which are but just sprouting) are black, broadly tipped with pale rusty. Under parts clothed thickly with fluffy whitish down, beneath which, on the breast and sides, true feathers of a dull white barred with dark brown are beginning to appear. From a specimen in the cabinet of Mr. N. C. Brown, taken at Deering, Me., June 29, 1875. It seems probable that young of this species — and perhaps of the whole family, like those of the *Tetraonidæ* and some others — pass through a stage of plumage previous to the usual primal one. The specimen above described is, strictly speaking, in process of transition between the two, and still retains patches of the soft whitish down which must have constituted its entire covering at an earlier period.

**91. Coccyzus erythrophthalmus.**

*First plumage:* female. Above lustrous plumbeous-ashy, feathers upon the crown, nape, and anterior part of the back, narrowly tipped with pale ashy; those of the interscapular region and rump, together with the scapulars and upper tail-coverts, more broadly so with ashy-white. Outer edges of quills light rufous. Beneath delicate pearl-gray, lightest on the abdomen, slightly tinged with pale brownish-yellow on the throat and breast. From a specimen in my collection shot in Lincoln, Mass., June 17, 1871. Autumnal specimens (probably only the young birds) differ from spring adults in having the naked skin around the eye yellow instead of red.

**92. *Picus villosus*.\***

*First plumage:* male. Forehead spotted thickly with white; crown dull scarlet, each feather subterminally spotted with white; nuchal crescent entirely wanting. Rest of upper parts dull dead black, marked and spotted with white as in the adult. Lores yellowish-white, maxillary line very faintly indicated. Beneath soiled yellowish-white. From a specimen in my collection shot at Upton, Me., August 1, 1874. The first plumage of this species is exceedingly evanescent. The scarlet patch upon the crown is soon lost, the feathers dropping out one by one; a few scattered ones, however, usually remain until the feathers of the nuchal crescent have begun to appear.

A female in first plumage (Upton, Me., August 20, 1874) differs so little from adults as scarcely to require a detailed description. The black of the upper parts, as in the male just described, is of a dead or plumbeous cast. The crown is entirely unspotted. I have, however, seen specimens which had the forehead spotted with white.

**93. *Picus villosus harrisi*.**

*First plumage:* male. Differs from the adult only in having the forehead spotted with white, and a patch of scarlet covering the crown. From a specimen in my cabinet collected by Mr. C. A. Allen at Nicasio, Cal., June 8, 1875.

**94. *Picus pubescens*.**

*First plumage:* male. Forehead and nape thickly spotted with white. Crown deep scarlet; no red on nape; rest of upper parts marked as in the adult, but the black duller. Beneath ashy-white, thickly streaked on the sides of the breast and body with dusky; on the sides of the abdomen these dusky markings assume the character of broad though poorly defined transverse bars. From a specimen in my cabinet collected at Upton, Me., August 14, 1874. Several other young males show a considerable amount of variation in the character and extent of the dusky markings beneath. In one or two the streaks are nearly continuous across the breast and abdomen. A very young male (Upton, August 1, 1874) has the forehead and

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\* As stated elsewhere, the young of most, if not all of the Woodpeckers, regularly moult the wing and tail feathers with the rest of the first plumage. No exceptions to this rule occur among large series of the common North American species examined, and it may probably be found to hold good among all excepting, perhaps, some highly specialized groups. Another peculiar feature in the early development of the species most thoroughly investigated, and one which is perhaps common to all the members of this family, is the fact that a certain proportion of the females in first plumage possess to a greater or less degree the adornments which in more advanced stages are peculiar to the males alone, and which are lost with the first moult. Marked examples of this are afforded by young females of *Colaptes auratus*, *Picus pubescens*, and others, of which detailed descriptions are given in the text.



nape dull, unspotted black, and a decided greenish-yellow tinge to the white both above and below.

*First plumage:* female. Forehead slightly spotted with white; *crown-patch scarlet*, exactly as in the male. Nape unspotted. Beneath brownish-white, barred obscurely upon the flanks and spotted continuously across the breast with dusky. From a specimen in my collection obtained by Mr. W. D. Scott, at Coalburgh, W. Va., July 25, 1872. Another specimen before me (Upton, Me., August 13, 1874) has the forehead and occiput, with a narrow median line connecting them, thickly spotted with white, but no scarlet. Still a third, in the collection of Mr. C. J. Maynard, has the crown irregularly patched with scarlet feathers. The sex of all these specimens was determined by the most careful dissection.

#### 95. *Picoides arcticus*.

*First plumage:* male. Similar to the adult, but with the yellow crown-patch rather more restricted; the black of the upper parts duller; the white beneath tinged with brownish, and the bars upon the sides dusky instead of black. A few feathers upon the lower interscapular region are spotted with white. From a specimen in my collection shot at Upton, Me., July 31, 1874. Unfortunately no females in strictly first plumage are available for comparison. A moulting specimen, however, which has acquired most of the second or autumnal plumage (Upton, Me., August 10, 1874), shows a patch of thickly sprinkled yellow feathers upon the crown, while another, taken as late as September 5, still retains several similar feathers. There can be little doubt but that among a good series of young females in first plumage many would be found to occur with yellow crown-patches quite conspicuously developed. All among a large number of adult females examined have the crown entirely plain.

#### 96. *Sphyrapicus varius*.

*First plumage:* male. Crown dull yellowish-green obscurely tinged in places with dusky-red; nape and a broad stripe extending through and behind the eye dull plumbeous-ash spotted with brownish-white; rest of upper parts like the adults, the white spots, however, tinged with pale greenish-yellow. Throat dull yellowish-scarlet. Malar stripes meeting below the throat-patch, mottled with dusky. Central line of abdomen greenish-yellow; rest of under parts dull greenish and olive, barred everywhere with dusky or dull black. From a specimen in my collection shot at Upton, Me., August 10, 1874. The amount of variation exhibited by a large series of males in first plumage is considerable. In one or two there is no red upon the throat; in others that part is brownish-white with a few scattered red feathers; many have the crown dull-brown, thickly spotted with brownish-white.

*First plumage:* female. Crown very pale greenish-buff, each feather narrowly tipped with brown; feathers of interscapular region dusky, with

transverse bands of yellowish-white ; rest of upper parts like the adult. Throat brownish-white ; abdomen pale brownish-yellow ; breast and sides dull brownish-olive, thickly barred with dusky. From a specimen in my collection shot at Upton, Me., August 6, 1873.

The first plumage of this species is worn for a longer period than that of any other bird with which I am acquainted. Some specimens taken as late as October and November seem not to have fully perfected their first moult, many of the earlier feathers being still retained. In this condition they present a curiously patched appearance, and scarcely any two are alike. Full justice has hardly been done by writers to the adult plumage of this species. Among the males, it is true, only a comparatively small amount of variation obtains, and the full dress is always acquired the first spring. But the females in spring plumage differ to a degree which seems almost endless. This mutation is, however, chiefly in relation to the color and markings of the crown. Thus, out of thirteen females before me, all collected in the breeding season, only six have the full patch of crimson upon the crown. In one specimen the whole top of the head is spotted thickly and evenly with brownish-white. Another exhibits two lateral patches of brownish-orange which extend nearly to the occiput, while a third has a few scarlet feathers upon the forehead. The remainder are variously marked over the crown with mixed yellow and crimson. This excessive variability is probably a purely individual tendency to aberration from a given type, as several spring females not as yet through the moult, and plainly shown by the remains of the previous plumage to be birds entering upon their first breeding season, have fully developed crown-patches of pure crimson.

#### 97. *Centurus carolinus*.

*First plumage* : female. Crown dull ashy, each feather tipped broadly with plumbeous ; nape with a narrow, inconspicuous collar of pale dull brick-red. Rest of upper parts marked as in the adult, with, however, a brownish tinge in the transverse white bands. Abdomen dull saffron ; rest of under parts brownish-ashy, nearly every feather in a broad band across the breast with a narrow, obscure shaft-streak \* of purplish-brown. From a specimen in my collection obtained by Mr. W. D. Scott, at Coalburgh, W. Va., July 23, 1872.

#### 98. *Colaptes auratus*.

*First plumage* : male. Crown washed with dull red ; nuchal band dull scarlet. Otherwise similar to the adult, but with the throat tinged with ash and the spots upon the under parts dusky instead of black. From a specimen in my collection taken at Cambridge, Mass., July 6, 1873.

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\* Several Woodpeckers, unmarked beneath in maturer stages, show a tendency to spots or streaks upon the sides and breast when in first plumage.

The female in first plumage I have not seen, but two young females before me, which have nearly perfected their autumnal plumage, have each a *well-defined mustache*, — not black, however, as in the male of any age, but of a dark plumbeous color. Upon raising the feathers, many of them are found to be nearly black at their bases, and a few entirely black ones appear. I have seen two other females, both young birds in imperfect autumnal dress, which had similar dark mustaches. It seems not unlikely that many females of this species may in first plumage be marked nearly like the males.

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## Recent Literature.

ELLIOT'S REVIEW OF THE IBIDINÆ, OR IBISES. — During the past year three important papers have appeared relating to different groups of the *Herodiones*. In June, 1877, Mr. D. G. Elliot published a paper on the Ibises,\* Dr. Ant. Reichenow has reviewed the whole group of *Herodiones*, and later Mr. Ridgway has written about some of the American species. Mr. Elliot treats the Ibises and Spoonbills as subfamilies of one family, for which he adopts the name *Ibididæ*. After a short *résumé* of the literature of the subject he gives a key to the nineteen genera (three being new), among which he distributes his twenty-five species. Then follows a systematic review of the species, with their principal synonymy, and various critical and descriptive remarks, with generally a short account of their habits and geographical distribution. The genus *Ibis* is very properly restricted to embrace only the Sacred Ibis of the Egyptians and a few other allied species. *Falcinellus* is employed as the generic designation for the Glossy Ibis and its allies. Of this group four species are recognized, three of which (*F. guarauna*, *F. ridgwayi*, and *F. thalassinus*) are exclusively American, the other (*F. igneus*) being "cosmopolitan," and represented with us by the "*Ibis ordii*" of Bonaparte and most American writers. The generic name *Ibis* being untenable for any of the New World species, *Eudocimus* (Wagler, 1832) is taken as the only generic name applicable to our White and Scarlet Ibises. — J. A. A.

RIDGWAY'S STUDIES OF THE AMERICAN HERODIONES. — The first † of the series of papers here begun deals mainly with the *Ardeidæ* and *Cico-*

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\* Review of the Ibidinæ, or Subfamily of the Ibises. By D. G. Elliot, F. R. S. E., F. L. S., etc. etc. Proc. Zool. Soc. London, 1877, pp. 477 – 510, Pl. LI.

† Studies of the American Herodiones. Part I. — Synopsis of the American genera of *Ardeidæ* and *Ciconiidæ*; including descriptions of three new genera, and a monograph of the American species of the genus *Ardea*. By Robert Ridgway. Bull. U. S. Geol. and Geogr. Survey, Vol. IV, pp. 219 – 251, February 5, 1878.

*niidæ*. Five families of American *Herodiones* are recognized, namely, *Cancromidæ*, *Ardeidæ*, *Ciconiidæ*, *Ibididæ*, and *Plataleidæ*, of each of which a concise diagnosis is given. The *Ardeidæ* are treated so far in detail as to give the characters of the genera, and a monograph of the American species of the genus *Ardea*. These are four in number, *Ardea occidentalis*, *A. herodias*, *A. cinerea* ("accidental in Greenland"), and *A. cocoi* (South American). Of these four species detailed descriptions of the different phases of plumage are given, with copious tables of bibliographical references. The *A. würdemanni* of Baird, which has been a puzzle to ornithologists for twenty years, is considered to be the "blue phase" of *A. occidentalis*, nearly ten pages (nearly one third of the paper) being devoted to a discussion bearing upon the character of *A. "würdemanni."* *A. occidentalis* is thus added to the series of "dichromatic" species of *Ardeidæ*. This conclusion rests at present mainly on theoretical grounds. After referring to dichromatism as exhibited in several other species of Herons, and in some Hawks and Owls, Mr. Ridgway says, "Who then, in view of these facts, can offer reasonable objection to the theory that *Ardea occidentalis* is likewise represented by two distinct phases of plumage, of which the white is by far the more common, the normal or colored phase ('würdemanni') being very rare — perhaps becoming extinct?"

As shown by the species already cited as composing the genus *Ardea*, this genus is again restricted to rather narrow limits, the American species of the subfamily *Ardeinæ* alone being distributed into fourteen genera, of which two are new. Among the North American we have *Herodias*, *Garzetta*, *Florida*, and *Butorides* again reinstated, while the *Demicregretta* of Baird is divided into *Hydranassa* and *Dichromanassa*, the last a new genus with the *Ardea rufa* of authors as type. The other new genus is *Syrigma* (= *Buphus*, Bon. 1855, nec Boie, 1826), with the South American *Ardea sibillatrix* as type.

The *Ciconiidæ* (of which the Wood Ibis is the only North American representative) is treated more briefly. A new genus (*Euxenura*), however, is instituted for the *Ciconia maguari* (Auct.) or the South American Stork, based chiefly on the remarkable characters of the tail (illustrated by an excellent figure), in which the lower coverts are elongated and stiffened, so as to resemble rectrices, the tail proper being short and deeply forked. — J. A. A.

REICHENOW'S REVIEW OF THE HERONS AND THEIR ALLIES. — Dr. Reichenow's order, "*Streitvögel*," or "*Gressores*,"\* embraces the ordinary

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\* Systematische Uebersicht der Schreitvögel (*Gressores*), einer natürlichen, die *Ibidæ*, *Ciconiidæ*, *Phœnicopteridæ*, *Scopidæ*, *Balænicipidæ*, und *Ardeidæ* umfassenden Ordnung. Von Dr. Ant. Reichenow, Assistent am kgl. zoolog. Museum in Berlin. Journal für Ornithologie, XXV Jahrgang, pp. 113–171, 225–278, pl. I, II. April and July, 1877.



*Herodiones* of authors, with the addition of the Flamingoes (*Phenicopteri-dæ*). He discusses at some length the affinities of this group, but we fail to be convinced of the propriety of its removal from the Anserine series, where of late it has been pretty generally placed, to its present association. In his introductory remarks Dr. Reichenow discusses the object of classification, the questions of "subspecies" and "varieties," and rules of nomenclature. He adopts the tenth edition (1758) of the "*Systema Naturæ*" as the starting-point of binomial nomenclature in zoölogy, and accepts, very properly, no specific names of an earlier date, while the first edition (1735) of the same work is taken as the earliest point of departure for generic nomenclature. He also throws over all "barbarous" names, whether specific or generic, all names of erroneous signification, and all classical names improperly constructed. Under these restrictions many long-established and familiar designations fall, to be replaced by the next (in Dr. Reichenow's view) unobjectionable name. In default of any such our author proceeds to supply the deficiency. In this way, to cite a few examples, *Platalea ajaja* becomes *P. rosea*; *Ciconia maguari* becomes *C. dicrura*, Reichenow; *Ardea herodias* becomes *A. lessoni*, etc.; the generic name (subgeneric in Reichenow's system) *Grosarchius* is replaced by *Butio*, Reichenow, *Zebriulus* by *Microcnus*, Reichenow, *Agamia* by *Doryphorus*, Reichenow (a name essentially preoccupied in entomology by *Doryphora*), *Garzetta* and *Egretta* by *Erodius*, etc., the earlier names being in each case supplanted because "barbarous." The specific names *major*, *fuscus*, *purpureus*, etc., when erroneous in signification, are replaced by later ones. These are innovations which we think stand small chance of general acceptance, and admit of no adequate defence, however advisable it may be to discard the practice of adding such names in future.

After discussing at some length the characters and classification of the order "*Gressores*," the author passes to a synopsis of the group, giving briefly the characters of the families, genera, and subgenera, short Latin diagnoses of the species, and the more important synonyms. Under the head of each family are general remarks upon the number of species, their distribution and habits. The whole number of species recognized is one hundred and twenty-three, with, in addition, quite a number of "subspecies" and "varieties." These are arranged in six families ("*Ibidæ*," twenty-seven species; *Ciconiidae*, nineteen species; *Phenicopteridae*, five species; *Scopidae* and *Balenicipidae*, each one species; *Ardeidae*, sixty-seven species), fourteen genera, and twenty-two subgenera.

In respect to the matter of genera, Dr. Reichenow displays extreme conservatism, his genera having in most instances a value most writers regard as supergeneric. His subgenera even are more comprehensive than are the genera of the ultra-divisionists, but in the main are such groups as we should consider as properly constituted genera. The contrast in respect to genera is rarely greater, among contemporary writers working in the same field, than is that presented by Dr. Reichenow on the one



hand and Messrs. Ridgway and Elliot on the other, the fourteen genera of Ibises recognized by Elliot forming only two in Reichenow's system, while the contrast is perhaps greater between the work of the latter and Mr. Ridgway's, so far as they cover common ground.

While differing from Dr. Reichenow respecting important principles of nomenclature, and on various points of classification, we can but accord to his paper a high importance, as it evinces laborious and careful research, and embraces a vast amount of information, succinctly and lucidly presented, that will be of great service to future workers in the same field. — J. A. A.

BREWER'S SUPPLEMENT TO HIS CATALOGUE OF NEW ENGLAND BIRDS. — This paper \* adds twenty-one species to the "Catalogue of the Birds of New England," published by this author in 1875, and contains notes on twenty-seven other species of rare occurrence in New England. The record of rare captures and of additions to the New England avian fauna is faithfully brought down to date, this brochure forming a most valuable appendix to his former "Catalogue." The whole number of "recognized forms" now admitted by him as having been taken in New England is three hundred and fifty-six. "To show," says our author, "the zeal and industry with which the knowledge of our fauna has been studied and extended, it needs only to be mentioned that the list now contains the names of not less than forty species not positively known to occur in New England prior to 1874, although the occasional appearance of some five or six had been looked for by several prophetic observers. This does not include seven species whose names had been borne on previous lists, but without any recorded evidence of their right to be there. It moreover includes two or three forms that some do not recognize as of specific value, and one whose very existence as a species appears to call for more evidence before its reality can be fully admitted." — J. A. A.

SAUNDERS ON THE LARINÆ. — The writer is indebted to the author for the early sheets of this very interesting, thorough, and discriminating review † of the family of Gulls, and although there is much in this paper throwing a welcome and greatly needed light upon several other than North American species, only the latter will be here considered. The whole number of species recognized in this paper is forty-nine, of which number twenty may be counted as North American, in which are included two, *Larus canus* and *L. affinis*, of purely accidental occurrence. It is not a little remarkable that *Larus affinis*, now recognized as a well-marked species, should have been first described by Professor Reinhardt from an individual that had straggled to Greenland. The investigations of See-

\* Notes on certain Species of New England Birds, with Additions to his Catalogue of the Birds of New England. By T. M. Brewer. Proc. Boston Soc. Nat. Hist., Vol. XIX, pp. 301–309, April, 1878.

† From the Proceedings of the Zoölogical Society of London [pp. 155–212], February 5, 1878.

bohm and Harvie Brown now show that its true habitat, in the breeding season, is in Northeastern Europe, on the Petchora. Specimens in an immature plumage had previously been taken on the Red Sea and in India, and also one from Novaya Zemlia. It is known only as a straggler to North America.

The only generic names retained by Mr. Saunders are *Larus*, *Xema*, *Rissa*, *Pagophila*, and *Rhodostethia*. To *Pagophila* he assigns but a single species, regarding *brachytarsus* as only a synonym; to *Rissa* two, treating *kotzebui* as only a form of *tridactyla*; to *Larus* forty-three species; to *Xema* two, *sabinii* and *furcatum*; and to *Rhodostethia* one. Although the absence of a hind toe has been regarded as the principal characteristic of the genus *Rissa*, and this feature is now known not to be a constant peculiarity, Mr. Saunders retains it as valid on account of other structural characteristics: these are the remarkably short tarsus, its forked tail, and the peculiar livery of the immature bird, besides its exclusively crag-nesting habits.

*Larus hutchinsii* Mr. Saunders considers to be an immature *L. glaucus* in that very brief stage where the mottled brown of the immature plumage has passed away and the pearl-gray mantle has not begun to appear,—a stage so short that but few specimens are recorded in this condition, though it is not uncommon in captivity.

*Larus glaucescens* is treated as a valid species, synonymous with *glaucop-terus* of Kittlitz and with *chalcopterus* of Lawrence. Its relationship to *glaucus* is shown by its changes of plumage to be closer than to *argentatus*.

*Larus occidentalis* is regarded as "a very recognizable form and fully deserving of consideration as a species," *L. affinis* being its nearest ally. Although compared with *L. fuscus*, it is more closely related to the Herring-Gull group in its larger size, stout bill, and large feet.

*Larus californicus* of Lawrence was first described by Pallas as *Larus niveus*, but the latter name "is not available, having been previously employed by Boddaert for *P. churruca*." This species occurs on the Japan coast, crossing the North Pacific, corresponds with the *niveus* of Pallas, and there is little doubt of its identity. The figure given by Pallas is said to be a perfect portrait of a specimen recently sent from the Smithsonian to Mr. Saunders. Mr. Saunders also shows conclusively that this species cannot be the *L. argentatoides* of Bonaparte's "Synopsis," for that is spoken of as "common near New York and Philadelphia," and as occurring "on the southern coasts of England," while the description and measurements suit *delawarensis*. Neither can *L. argentatoides* of Richardson be identical with *L. californicus*, for reasons equally conclusive.

*Larus delawarensis* is held to be the *argentatoides* of Bonaparte (*nec* Brehm). An immature specimen of this bird is recorded as from Hakodadi, Japan.

*Larus brachyrhynchus*, synonymous with *suckleyi* and *septentrionalis*, is regarded as an entirely distinct species from *canus*. In all the specimens

seen by Mr. Saunders the color of the mantle of this species is darker than in the darkest *L. canus*. From the latter its general appearance is so different that they are distinguishable at a glance.

Among the synonyms of *Larus franklini* are given *cucullatus* of Bruch, Lawrence, and Coues, *kittlitzii* and *schimperi*, both of Bruch. On the Pacific coast this species goes down as far as Chili, fully adult examples having been taken as far south as Santiago.

*Rhodostethia rosea*, the rarest of this family, is known by some thirteen examples. With two, perhaps three, exceptions these have all been taken in Arctic America. The one said to have been taken in England rests on very questionable authority. Sabine's Gull, on the Pacific coast, on the authority of Professor Steere of the University of Michigan, has been taken on Macebi Island, on the coast of Peru, in latitude 8° south. The example was in the adult plumage.

Mr. Saunders's paper evinces a remarkable success in disentangling the complicated web of European Gulls; but to explain the great service thus rendered would take too much space, and would not interest most of the readers of the Bulletin. This is especially true of the synonymy of *leucop-terus*, *argentatus*, *cachinnans*,—which at last takes its place as a good species, a synonym not of *argentatus*, but of *leucophæus* and *michahellesii*,—*affinis*, *ridibundus*, and *ichthyætus*. A more complicated tangle than these six species presented, thanks to such splitters as Boie, Brehm, Bruch, and Bonaparte, it would be hard to imagine, and the service rendered by Mr. Saunders cannot fail to be appreciated by all who have experienced its need.—T. M. B.

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## General Notes.

THE NESTING OF THE YELLOW-BELLIED FLYCATCHER (*Empidonax flaviventris*).—On Monday, June 10, 1878, while collecting in company with Mr. R. F. Pearsall on the island of Grand Menan, I flushed a Yellow-bellied Flycatcher, which seemed to come from directly under my feet. The locality was a good-sized hummock of moss, in swampy ground at the edge of some low woods. For some time I was unable to find any signs of a nest, but finally I discovered a small hole one and a half inches in diameter in the side of the hummock, and on enlarging this opening the nest, with four eggs, lay before me. The bird, which had all the time been hopping around within a few feet of our heads, was at once shot. The cavity extended in about two inches, was about four inches in depth, and was lined with a very few grasses, black hair-like roots, and skins of berries. The eggs, four in number, are white, with a very delicate creamy tint, which differs in its intensity in the different specimens, and are spotted, mostly at the larger end, with a few dots and blotches of a light reddish shade.

As far as I can learn, there are several nests of this bird in different collections, the identities of most if not all of which are disputed. The description in Baird, Brewer, and Ridgway's work agrees very well with nests of the Traill's Flycatcher which I have seen, but is totally different from that of the nest now before me, and so much so that, although I am well aware of the great differences existing in the nesting habits of birds of the same species, yet I cannot believe them to extend as far as this.

As we were leaving Grand Menan, a nest was brought to us which I have no doubt is of the same species, as the position and construction, which are, to say the least, peculiar, as well as the eggs, correspond exactly; also the finder's description of the bird. — S. D. OSBORNE, *Brooklyn, N. Y.*

THE BLUE-WINGED YELLOW WARBLER (*Helminthophaga pinus*) IN MASSACHUSETTS. — Although this species has been recorded \* as a bird of the State, and the specimen cited is in the collection of the Boston Society of Natural History (the specimen was captured in Dedham by Mr. Emanuel Samuels and presented to the society by Dr. Cabot), recent writers on Massachusetts birds have seen fit to exclude it from their lists. I have just examined a fine male specimen of this species which was captured in West Roxbury, Mass., on May 17, 1878, by Mr. C. N. Hammond. It is now in the collection of Mr. John Fottler, Jr., of Boston. This makes the second recorded instance of its capture in the State. — RUTHVEN DEANE, *Cambridge, Mass.*

THE SKUA GULL (*Stercorarius catarractes*) ON THE COAST OF MASSACHUSETTS. — Professor Baird has recently informed me that one of his party found, on the 18th of July, at the Fort Wharf, Gloucester, the dead body of a bird that proved upon examination to be an example of the common large Skua. The bird showed marks of having been recently kept in confinement, and a little inquiry elicited the information that it had been captured alive by means of a hook on the Georges, and had been kept alive on one of the fishing vessels. This is the first instance on record in which one of this species has been taken on any part of North America other than Greenland; and as the Georges geologically and practically belong to our coast water, this bird may now be classed not only as of North America proper, but also of New England and Massachusetts. — T. M. BREWER, *Boston, Mass.*

RUFous-HEADED SPARROW (*Peuceea ruficeps*) IN TEXAS. — On April 24, 1878, Mr. George H. Ragsdale, of Gainesville, Texas, shot a male and female of this species in Gilliespie County, Texas, about one hundred miles west of Austin. The species was first described from specimens taken in California. In 1873 it was found in Arizona by Mr. H. W. Henshaw, and also at Fort Bayard, N. M. He speaks of finding it numer-

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\* Proc. Bost. Soc. Nat. Hist., Vol. VI, p. 386.

ous south of Camp Grant in Arizona, and says that in its notes and habits it bears a close resemblance to the Song Sparrows. This appears to be its first known occurrence east of Southwestern New Mexico. For an opportunity of examining one of the above-mentioned Texas specimens, and for the data respecting their capture, I am indebted to Mr. Ragsdale. — J. A. ALLEN, *Cambridge, Mass.*

EARLY NESTING OF THE SHORE LARK NEAR INDIANAPOLIS, IND. — The Shore Lark is well known as being a bird that rears its first brood of young very early in the season, but the following places the record nearly a month earlier than any before known to me. Professor David S. Jordan writes, under date of April 24, 1878: "Professor Brayton shot here (near Indianapolis, Ind.) this morning a number of Shore Larks (*Eremophila alpestris*), and among them were two young birds, about grown. The bird usually remains here most or all of the summer, but I never knew of their breeding so early." — J. A. ALLEN, *Cambridge, Mass.*

BREEDING OF THE SHORE LARK IN WESTERN NEW YORK. — My attention has been drawn to John M. Howey's note in the January number of the Bulletin (Vol. III, p. 40), on the breeding of the Shore Lark (*Eremophila alpestris*) in Western New York. For the past two years this bird has been quite common in our locality, and on June 6, 1876, it was my good fortune to find a nest and eggs of this species. The nest was placed on the ground in nursery rows of young apple-trees, and was composed of dried grasses very loosely put together. It contained four eggs, which were blown with difficulty, the embryo being about one third developed. During the past season several pairs remained with us all summer, but I was unable to find their nests. — H. T. JONES, *Rochester, N. Y.*

RED-HEADED WOODPECKER EATING GRASSHOPPERS. — Much has been said in relation to the change in the habits of the Red-headed Woodpecker, and the fact that he has been compelled, by the intrusion of other birds, to such ordinary insects, instead of those which inhabit the outside and inside of trees, has been noted by many observers. During the summer of 1877 I saw one on the prairie, half a mile from the timber, very intently bent upon catching grasshoppers (*Caloptenus spretus*). The bird made a fence-post his point of departure and return, flying off a few rods and capturing his game, and then alighting on the post to devour it more at leisure. These birds are apparently much less numerous in this region than they were ten or twelve years ago. — CHARLES ALDRICH, *Webster City, Iowa.* (*Communicated by E. C.*)

SONG OF HEPBURN'S FINCH (*Leucosticte littoralis*, BAIRD). — In a recent letter (February 25, 1878) from Captain Bendire is the following interesting note on the song of Hepburn's Finch. As no writer has made any mention of the song of this species, I deem the Captain's account well worthy of a place in the Bulletin. "Yesterday evening," he writes, "on my way to the stable, I saw a solitary *Leucosticte* on the eave of the roof



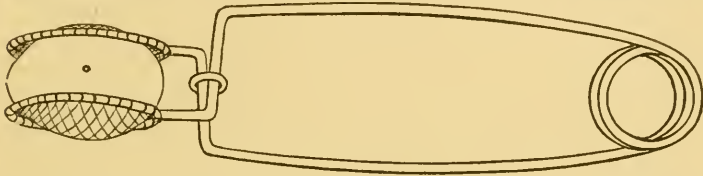
of Captain McGregor's quarters. He is quite a lover of birds, and has three canaries, their cages hanging against one of the side windows. The little Finch on the roof evidently had heard them singing, and was, at the moment when I noticed him, showing what he could do in that line. He evidently saw the birds in their cage, as every once in a while he stretched his neck and looked down in the direction of the window. Its song was quite varied, low, and sweet, but feeble and without much volume. It was still quite a fair and very pleasant song. I was quite surprised, and listened to him for full five minutes. This was the first time I have heard any making an attempt to sing." — T. M. BREWER, *Boston, Mass.*

THE SHORT-TAILED TERN (*Hydrochelidon fissipes*) IN MASSACHUSETTS. — In view of the fact that the Short-tailed Tern has been heretofore considered a rare visitor to Massachusetts, it may be of interest to state that during a week spent on the island of Nantucket in August, 1878, a large number of specimens were observed by the writer. On August 16 no less than eight individuals were seen in the harbor near the town, and several were shot and examined. On every subsequent occasion when the shores of the island were visited small companies of these Terns were seen, sitting on the sand-bars, or fishing among the other and commoner species. They associated most commonly with the Wilson's and Roseate Terns, and procured their food in the same way, hovering over the "schools" of blue-fish and pouncing upon the small fry which these voracious creatures drove to the surface. The stomachs of all the specimens which were dissected contained the macerated remains of small fishes only. In no case were any insects detected. — WILLIAM BREWSTER, *Cambridge, Mass.*

THE BLACK-THROATED BUNTING (*Euspiza americana*). — On page 45 of the present volume of the Bulletin reference is had to the finding the nest and eggs of this bird in Medford, in June, 1877, and the remark is made that but few instances are known of this bird nesting in Massachusetts. Without disputing this statement, I would mention that in 1833 and 1834 this bird was by no means uncommon in Cambridge in all the (then unoccupied) region around the Botanical Garden and thence to West Cambridge and Charlestown. It may be found now every summer on the high promontory making the northeast corner of Hingham, known as Planter's Hill and World's-End, lying between Weir River and the harbor. Mention is made of its breeding in that locality in "North American Birds" (Vol. II, page 67, lines 2 and 3), and since then its presence has been noted every season when search has been made. In order to verify its presence in this its favorite locality, this summer I made a successful exploration, June 30, in company with my nephew, Willard S. Brewer. We found one pair, with young, which the female was busily engaged in feeding with small grasshoppers, while the male was intent upon his quaint serenade on a near heap of stones. They were quite tame and unsuspicious, and permitted a very close approach. We saw two other males,

evidently in the neighborhood of their respective families, but the heat compelled us to desist from further investigations. In the same locality we found *Spizella pusilla*, *Poæcetes gramineus*, and *Melospiza melodia*, but the Buntings were present in at least equal numbers, as we heard the notes of other males besides the three we fully identified. But a fierce sun, with the glass at 90° in the shade, was not favorable to a full census of all the pairs inhabiting this remote region. We saw enough to satisfy us of its actual presence in considerable numbers. — T. M. BREWER, *Boston, Mass.*

A HINT TO EGG-COLLECTORS. — The usual method of emptying eggs through one small hole with a bent blow-pipe is doubtless supposed to be a very modern trick ; but it dates back to 1828, when M. Danger \* pro-



posed "a new method of preparing and preserving eggs for the cabinet," which is substantially identical with the operation as now universally practised, though he used a three-edged needle to punch the hole, instead of our modern drill, and did not refer to some of our late ways of managing the embryos. I refer to the paper less as a matter of history than for the purpose of bringing to notice one of the tools which M. Danger recommends, and which I think would prove very useful indeed. In fact, I am rather surprised that it has been so long neglected, and strongly advise a trial of the instrument, as something better than fingers for *holding* the egg during drilling and blowing. The instrument is so simple, that it will be understood without description by a glance at the accompanying figure. The oval rings are covered with some light fabric, like mosquito netting, and do not touch the egg, which is held lightly but securely in the netting. Such an instrument would cost but a trifle, and it seems worth ascertaining whether we may not avoid danger by Danger's own method. — ELLIOTT COUES, *Washington, D. C.*

THE KENTUCKY WARBLER (*Oporornis formosus*) AT SING SING, N. Y. — At this place, in June, 1875, I found the nest, containing three fresh eggs, and secured the two old birds of this species.† The woods where they were found is a long belt, which lies on both sides of a stream which

\* Mémoire sur une nouvelle méthode de préparer et de rendre durables les collections d'œufs destinés aux cabinets d'histoire naturelle ; par M. F. P. Danger. *Annales des Sciences Naturelles*, 1<sup>ère</sup> sér. V, 1828, pp. 338–348, pl. 10.

† Am. Nat., Vol. IX, No. 10, October, 1875, p. 573.

originally must have been much larger. It has worn away ravines some thirty or forty feet deep; in other places it has expanded into shallow flats. The length of the stream is about three miles, and it runs in a ravine through the very heart of our village, and empties into the Hudson. The stream now is quite small, and the level places along the banks of the upper portion are covered by weeds, ferns, and scanty undergrowth. The woods which overhang the stream along its course, only broken now and then by a field or pasture, are composed of large hemlock, oak, and chestnut trees, under which there is little undergrowth, and the rays of the sun hardly penetrate their thick foliage, making a cool and shady retreat. Here, this spring and summer, seemed the very paradise for the Kentucky Warbler. While collecting, May 21, I saw four flitting here and there among the small plants, and secured two; May 22 I collected four more; the 24th, four were seen, and I shot three; the 27th, I saw two; on the 29th, a mile up the stream, I saw another, and my friend, Mr. George Hyles, shot one still higher up. June 1 and 4 I saw a pair near where the first ones were seen, and on the 20th of June found their nest containing five young, which left it June 29. June 9, in a woods some miles distant, I saw a male. June 26 I saw still another, and from its actions it must have had a nest or young near, but from want of time I did not look for it. July 5 a male came under my window, and, perching on a shrub, warbled out his short but lovely song. The same day Mr. Hyles saw a male four miles south of this place. Allowing the same ones were sometimes seen twice, there have been at least sixteen individuals here, and undoubtedly four nests. — A. K. FISHER, *Sing Sing, N. Y.*

THE SNOW-BIRD IN SUMMER ON MOUNT WACHUSETT. — Mr. Bradford Torrey writes: "On the 8th of July (1878) I saw a pair of Snow-Birds (*Junco hyemalis*) on the summit of Mount Wachusett, and, as I do not find any mention of their breeding there either in the 'History of North American Birds' or in Mr. Allen's 'Catalogue of the Birds of Massachusetts,' I venture to send you this item, trusting that you will overlook the seeming presumption if the fact is one well known." Although there is, I think, no record of the presence in the breeding season of the Snow-Bird on Mount Wachusett, it is well known to occur there at that season, where it has been met with by Mr. Brewster and other observers repeatedly during the last few years. The occurrence of an isolated colony of these birds on Mount Wachusett seems well worthy of record. — J. A. ALLEN, *Cambridge, Mass.*

AN ALBINO ANNA HUMMING-BIRD. — I had sent to me, July 10, 1878, a fine specimen of an albino Hummer of the species *Calypte anna*. It was taken in San Rafael, Marin Co., Cal., by parties unknown to me. The bird has the head, neck, and under parts bluish-white; back and tail with a pale creamy tint; three longest feathers in upper tail-coverts pale cinnamon; bill and feet flesh-color; eyes pinkish; primaries and secondaries pure white; eyelids with a creamy tinge. The bird was a young

one, and the sex could not be readily determined. — C. A. ALLEN, *Nicasio, Marin Co., Cal.*

WILSON'S THRUSH, WITH SPOTTED EGGS AND NESTING ON A TREE. — In a collection of nests and eggs received from Vermont this season was the nest of this species built upon a horizontal limb of a tree, fifteen feet from the ground, and containing four spotted eggs. This is the only instance I have ever known either of the nest being much above the ground or of the eggs being other than immaculate. But I find it is not without precedent. Mr. George O. Welch several years since found a nest of this Thrush in Lynn at a height of twenty-five feet above the ground, and Mr. Allen has recorded (*Proc. Bost. Soc. Nat. Hist.*, XVII, 48) an instance of its having spotted eggs. This case combines both. The nest is large and bulky, was saddled over quite a large limb, the impress of which is shown in the base. The ground-color of one egg is unusually deep, as deep as that of a Catbird, but of a different shade. The spots are of a bright golden-brown, in one egg very strongly marked, in the other three not so much so. The parent was sent with the nest, and before I received it its identity had been carefully verified by that veteran ornithologist, Charles S. Paine, Esq., of Randolph, Vt. — T. M. BREWER, *Boston, Mass.*

THE PYGMY OWL (*Glaucidium californicum*). — On the 13th of August, 1877, about dusk, I heard near the house a great fuss among a lot of Brewer's Blackbirds, which had nested in a small clump of red-woods near by. On approaching the spot, out went a bird, to which all the Blackbirds gave chase. When all had settled in a red-wood tree near by, I saw a Pygmy Owl sitting on a limb, — the cause of all the noise. I had my gun brought to me, when I shot the Owl, which proved to be a female. Again on July 8, 1878, at nine o'clock A. M., I heard a disturbance among the Blackbirds in the same clump of trees, and, suspecting the cause, took my gun and went to see what was the matter. On approaching the spot, out flew a lot of birds of different species, and among them a *G. californicum*, which, after much trouble, I shot as it was flying over some low bushes; this one was a male. There were fighting the Owl one pair of *Tyrannus verticalis*, one pair of Bullock's Orioles, one pair of Bewick's Wrens, three Banded Tits (*Chamæa fasciata*), one pair of *Pipilo oregonus*, one pair of *P. crissalis*, and about twenty Blackbirds (*Scolecophagus cyanocephalus*). The bravest birds of the troop were Bewick's Wren and Bullock's Oriole, which kept darting at the Owl's head as it sat on the ground devouring a young Blackbird. I have seen a Pygmy Owl dart down and lift a Chipping Squirrel with ease and carry it off. — C. A. ALLEN, *Nicasio, Cal.*

THE CAROLINA WREN IN MASSACHUSETTS. — My friend, Mr. Geo. O. Welch, secured a fine specimen of the *Thryothorus ludovicianus* in Lynn, on the 6th of July. The imprudent stranger ventured within an easy range of his work-room window, in the very heart of the city, and now remains as tangible evidence of its right to a place on the list of the birds of this State as well as New England. — T. M. BREWER, *Boston, Mass.*



THE TITLARK (*Anthus ludovicianus*) IN MASSACHUSETTS IN JUNE. — The occurrence of the Titlark on the coast of Massachusetts so late as the 8th of June, with just the possible suspicion that it was about to breed there, is a very interesting and characteristic fact in the history of the eccentric and abnormal habits of this species. It has been claimed to breed regularly in Central New York, though its presence there in mid-summer would seem, of itself, so improbable as to require confirmation. The example now referred to as taken on our coast was shot by Mr. Wm. A. Jeffries, on a small island off the shore, at Swampscott, on Saturday, June 8. Its mate, if it had one, could not then be found, nor any trace of a nest. We cannot be certain of its having been a mated bird, but the condition of its reproductive organs renders this supposition probable. The occurrence of this species on our coast, in the height of the breeding season, while it does not necessarily confirm that of Mr. Gilbert of Penn Yan (see Bull., III, p. 35), goes a good way to establish its eccentric and nomadic habits, and prepare us to accept as possible, irregularities that would be improbable in almost any other species. — T. M. BREWER, *Boston, Mass.*

NESTS AND EGGS OF HELMINTHOPHAGA PINUS. — Mr. S. N. Roads, of West Chester, Pa., writes respecting two nests of this bird, the nidification of which is as yet none too well known. On the 12th of June, 1878, he found a pair of these Warblers showing unmistakable signs of having a nest, which latter he soon discovered, as he saw the male fly to it with a worm in his bill. It was built in the midst of a clump of tall swamp-grass, on the outskirts of a forest where there was a good deal of weedy undergrowth not over two feet high. The nest rested slightly on the ground, and was quite bulky for the size of the bird; the cavity was nearly three inches deep by two inches in width. The structure was composed externally of beech and oak leaves of the preceding year, which "seemed to have been carelessly strewn and stuck in as if to form a barricade around the brim." The lining consisted of fine strips of grape-vine and inner bark of the oak, together with some straws. This nest contained four young birds about two days old.

Mr. Roads shortly afterward procured two eggs from another nest which he found about a quarter of a mile from the same spot. These were pure white, dotted with red at the greater end, and were of just the size of those of *Chrysomitris tristis*, but less pointed. He also examined another set of eggs procured by a friend in the same vicinity. — ELLIOTT COUES, *Washington, D. C.*

THE WINTER WREN BREEDING IN SOUTHERN NEW YORK. — Six miles south of Ithaca, N. Y., and leading eastward from Enfield Falls into the Cayuga Valley, is a beautiful glen. It is long, deep, and narrow, with steeply diverging walls rising, on either side, some three hundred feet above the bed of the stream. Large hemlock, pine, and beech trees are so closely crowded together in it as to preclude effectually the sun's rays,



and, with the stream running below them, to secure for the glen a temperature and humidity not unlike what is to be found in the forests of Northern Wisconsin.

In company with my friends, F. H. Severance and W. Trelease, I paid a visit to this glen June 21, 1878. Just below the Falls, where the glen widens, a group of five Winter Wrens (*Anorthura troglodytes* var. *hyemalis*) were discovered darting in and out of a brush-pile which lay a short distance back from the stream. On securing one of these, it was found to be a fully fledged young bird, but so immature as to leave no doubt that it was one of a brood which had been reared in the glen.

It may be added that two Winter Snow-Birds were observed in this glen on the same date, and that an Acadian Flycatcher was obtained there. — F. H. KING, *Ithaca, N. Y.*

THE SOOTY TERN IN NEW HAMPSHIRE. — Up to the present time record has been made of the capture of nine specimens of this Tern in New England,\* all these examples having been taken in Massachusetts, Rhode Island, and Connecticut, since September, 1876. I now record the tenth and most northern specimen, a fine adult male, taken at Newmarket, N. H., about September 14, 1878, by Mr. D. C. Wiggin. I am indebted to Mr. Charles I. Goodale, who has preserved the specimen, for the above facts. — RUTHVEN DEANE, *Cambridge, Mass.*

SABINE'S GULL IN MAINE. — Mr. G. A. Boardman writes that among the rare birds taken by him last spring (1878) near Calais, Me., is a Sabine's Gull (*Xema sabinei*), in very nearly full plumage. I am also informed that a specimen of the same species was taken not long since at Portland, Me. The only other New England record for the species is Boston Harbor, Mass., September 27, 1874 (*Brewster, Amer. Sportsman*, V, 1875, 370; *Brewer, Proc. Bost. Soc. Nat. Hist.*, XVII, 1875, 449). — J. A. ALLEN, *Cambridge, Mass.*

THE WHITE-CROWNED SPARROW BREEDING IN VERMONT. — One of my correspondents, Mr. H. E. Boughton, of Rutland, Vt., writes me that he has, the present summer, found a pair of *Zonotrichia leucophrys* breeding in that locality. As I know of no other record of this bird breeding in New England, I send the item, with all he writes me in regard to it. "The nest," he says, "was taken by myself, and was situated in a clump of blackberry and maple bushes, and was about three and one half feet from the ground. It is composed entirely of straw and grass, is very bulky, being almost as large as the nest of a Robin on the outside, and about one and one half inches in diameter on the inside. When the nest was approached the bird, which was very shy, would dart off from it and into the bushes like a shot; but by concealing myself I obtained a good view of her when she returned." — T. M. BREWER, *Boston, Mass.*

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\* Merriam's Review of the Birds of Connecticut, pp. 134, 135; Bull. Nutt. Ornith. Club, Vol. II, pp. 22, 27, January, 1877.

NESTING HABITS OF THE RED-BELLIED NUTHATCH.—Having been observing the nesting habits of the Red-bellied Nuthatch (*Sitta canadensis*), I will give the readers of the Bulletin the results of my observations. June 2, I found a nest on Little Deer Isle, Penobscot Bay. It was in a white-birch stub some ten feet from the ground; the entrance was one and one half inches wide by one and one fourth deep. The hole ran slanting for three inches, and then straight down for four inches more. It contained six eggs, which were white, with small specks of reddish-brown on the small end, and heavily spotted with the same on the larger end, a great deal more brown than the eggs of the White-bellied Nuthatch. Incubation had not commenced. For two inches below the centre of the hole, and for half an inch on either side, the birch bark was coated with fir balsam. June 20, I found another in Holden, Me., which the young had just left. It was in a poplar stub some twelve feet from the ground. Hole one and one half inches by one inch, slanting down four inches, and then four inches straight down. This hole had fir balsam one fourth of an inch thick for two inches below the hole, and then thinner, and running down in large drops for twenty-one inches below the hole. The pitch extended an inch on either side, and more than three inches above the hole, in all more than could be heaped upon a large tablespoon. It was stuck full of the red breast-feathers of the bird, but there were no signs of any insects having been fastened by it. This nest had been occupied two years. Near both the nests were other holes not so deep, probably used for one of the birds to occupy while the other is sitting, as is the case with most Woodpeckers. Both nests were composed of fine short grasses and roots. I notice that in making the hole the bird makes a circle of holes round a piece about as large as a ten-cent-piece, and then takes out the piece of bark entire. I have one nest which has near it a piece circled in this manner, but not removed. My friend, Mr. Harry Merrill of Bangor, found a nest last year surrounded by pitch just as in those found by me. So that it seems certain that in most cases they do this, though for what purpose I am as yet unable to determine. The pitch certainly was placed there by the birds, as neither birch nor poplar contains pitch, and there were no overhanging trees from which a drop could come. I think it would take the bird several days of steady work to obtain what was around the nest in the poplar. I think that more nests would be found if people did not mistake them for holes of the Downy Woodpecker, which are of the same size, though rounder. Audubon speaks of their being placed four feet from the ground; but while this is sometimes the case, they are oftener ten to fifteen feet from the ground. It is easy to tell even an old nest from that of either a Downy Woodpecker or Black-capped Titmouse, as the Woodpecker lays directly upon fine chips, without any nest, and the Titmouse makes a nice nest of fur and feathers, and neither place any pitch round the holes, while the Nuthatch makes its nest of short fine grass and protects with pitch outside the hole.—MANLY HARDY, *Brewer, Me.*

TRAGIC FATE OF A SUMMER WARBLER. — A pair of *Dendroica aestiva* built for their second brood in a bush in the garden. Being interested to learn the progress of their domestic lives, I visited the spot frequently. On the fifth day I found the poor mother-bird hanging dead from the half-finished nest by a piece of cord which was twisted tightly around her neck. — W. L. COLLINS, Frankfort P. O., Pa. (Communicated by E. C.)

EGGS OF THE SOLITARY SANDPIPER (*Rhyacophilus solitarius*, Br.). — The egg of this species has remained, to the present time, an unknown and much-desired addition to our cabinets. From time to time eggs claimed to be of this bird have been described, or have had a nominal existence in collections. But these claims have always been open to suspicion and doubt. The eggs have all either had so strong a resemblance to either the egg of the Spotted Tatler (*Tringoides macularius*) or to that of the Killdeer (*Ægialitis vociferus*) as to cause the belief that their identification could not have been correctly made. During the last year eggs were sent to me for verification from five different parties, and all were deemed not worthy of credence. A few days ago, hearing of a Solitary Tatler having been shot near her nest, and an egg obtained, in Castleton, Vt., I at once wrote to the party, and have obtained from him a temporary loan of both parent and egg, with permission to describe the same in the Bulletin.

The bird and egg were taken by Mr. Jenness Richardson about the middle of May, — I have not the exact date, — 1878, at Lake Bomaseen, on the ground, in a pasture bordering on a swamp. The bird was on her nest when first discovered, but fluttered off when approached, ran a short distance, then stood still, watching him until she was secured. There was no actual nest, only a small depression in the ground. I am informed by Mr. Richardson that the bird is quite common in that locality, but very shy. This egg resembles no egg in my possession, and in its appearance there is something suggestive of an egg prematurely cut from its parent. It is smaller than I anticipated, measuring only  $1.37 \times .95$ , while the egg of *Totanus ochropus*, which bird closely corresponds in size and appearance with our Solitary, measures  $1.50 \times 1.10$ . The ground-color is a light drab, similar to that of the egg of *Ægialitis melodus*. Over this are scattered small rounded markings of brown, some of these quite dark, nowhere confluent, and never large enough to be called blotches. At the larger end there are a few faint purplish or lilac discolorations or shell-marks. In shape it is an elongated pyriform. — T. M. BREWER, Boston, Mass.

LINCOLN'S FINCH (*Melospiza lincolni*) BREEDING IN HAMILTON COUNTY, N. Y. — On the 13th of June, 1878, while on a fishing trip in the wilderness of New York, my companions and myself were skirting (two on one side and two on the other) a beautiful little pond in Hamilton County, N. Y., which is dignified with the name of "Moose Lake," when one of the party from the opposite side called across to me, "Do you want a bird's nest?" On my expressing surprise at such an unnecessary question, he shouted

back as his excuse, "O, it is nothing but a little brown bird." Such is the deplorable ignorance of the majority of mankind. The little brown bird turned out to be *Melospiza lincolni*.

On arriving on the opposite side of the pond, I found the bird, driven from her nest by my friend, had not returned; we therefore retired a little, and in a few minutes she came back to her treasures and was sacrificed to science. The nest was placed on the ground, where it was almost spongy with water, within about two rods of the pond, and about the same distance from the edge of the forest. It was not under the protection of any bush or stone, but was quite well concealed in some last year's tall grass. It was composed entirely of dried grasses both inside and out, the lining being neatly made of the finer spears, and contained three eggs, a few days advanced in incubation. These measured  $.74 \times .56$ . The ground was a pale greenish, covered with spots and blotches of different shades of reddish-brown. On one of them the spots were so numerous as to become confluent and almost conceal the ground-color, while on another they were much smaller, so that the greenish-white of the ground-color was the predominant tint, except at the large end, where the spots became larger and more confluent, as indeed they did on all three.

This Moose Lake is a small body of water situated about fifteen miles northeast of Wilmurt P. O., Herkimer County, and must not be confounded with its larger namesakes, which are situated farther north, — Moose in Herkimer County, Big Moose on the line, and North Moose in Hamilton County. The outlets of these three all empty into the Moose River, while that of the one here referred to runs into the West Canada Creek. This I think is farther south than the Lincoln's Finch has been found breeding east of the Great Lakes, and, in fact, is but little north of Racine, which is the southern limit of its breeding, according to Baird, Brewer, and Ridgway's "History of North American Birds." Nor can I, with the limited number of books at my command, find any record of the bird having been taken in this part of the State.—EGBERT BAGG, JR., *Utica, N. Y.*

OCURRENCE OF THE WHISTLING SWAN (*Cygnus americanus*) IN MASSACHUSETTS. — During a recent visit to Nantucket I had the pleasure of examining a fine specimen of the Whistling or American Swan in the possession of Mr. H. S. Sweet of that place. Through Mr. Sweet's kindness I am enabled to give the full particulars attending its capture. It was first seen about December 27, 1877, on Sacacha Pond, at the east end of Nantucket, in company with five Canada Geese. The latter were all killed in the course of a few days, but the Swan, though repeatedly fired at, seemed to bear a charmed life, and for a long time evaded all attempts at its capture. Through the succeeding two months it was frequently seen either in Sacacha Pond or Polpis Harbor, between which points it appeared to confine its wanderings. The winter was a very mild one on the island, and it accordingly had little difficulty in obtaining food. It



was finally shot, March 4, 1878, on Coskata Pond, by Mr. F. P. Chadwick, and by him presented to Mr. Sweet. The bird is apparently in nearly perfect plumage, with the otherwise pure white only partially obscured by a plumbeous wash upon the top and sides of the head, and for a short space on the neck behind. Its weight was sixteen pounds. The sex was not ascertained. Although this species is given in many of the local lists as of occasional occurrence during the migrations, there seems to be no previous record of its actual capture in Massachusetts.

At the time of the first settlement of the country, according to various early writers, a Swan — presumably *C. americanus* — was common along the Merrimack River and in some other parts of the State. — WILLIAM BREWSTER, *Cambridge, Mass.*

CAPTURE OF A FIFTH SPECIMEN OF THE WHITE-THROATED WARBLER (*Helminthophaga leucobronchialis*). — I am indebted to Mr. E. I. Shores for the opportunity of examining a specimen of the White-throated Warbler, which was taken by him at Suffield, Conn., July 3, 1875. It is an adult male in very worn plumage. In every essential particular it agrees well with my type of the species, though exhibiting certain peculiarities of coloration not found in any of the three specimens which I have previously examined. These differences are such as might be expected to occur in a series sufficiently large to present the range of individual variation, and do not tend to establish any closer connection with either of the allied species. The most marked departure from the type is presented by the coloration of the under parts. The entire pectoral region is washed with pale yellow, which extends down along the sides of the abdomen nearly to the tail. This coloring proves upon examination to be a merely superficial tipping to the feathers. In a good series of *H. chrysoptera* before me several specimens occur which are marked in a nearly similar manner, though in none of them does the yellow wash extend so far down upon the sides. With this latter species it seems to be a purely individual phase of coloration, dependent neither upon age nor season. Several young males in newly completed autumnal dress do not show the slightest trace of its presence, while a young female in fall plumage is quite distinctly tinged across the breast. The spring specimens most strongly marked are all apparently very adult birds.

Another point of difference, scarcely to be expected when the unusual amount of yellow beneath is taken in consideration, is found in the restricted area of the yellow marking upon the wing-coverts. In the type specimen the wing-bands are nearly confluent, and present the appearance of a single broad yellow band upon the wing, while in Mr. Shores's specimen they are widely separated. This, however, seems to be mainly due to the imperfect condition of the plumage, whereby the darker bases of many of the greater coverts are exposed. No further differences worthy of note occur, and the salient characters of white cheeks and eyelids, narrow restricted black line through the eye, etc., are all strongly



presented. Mr. Shores's specimen makes the fifth that has already been brought to light, and is the second reported from Connecticut. — WILLIAM BREWSTER, *Cambridge, Mass.*

NESTING OF THE BANDED THREE-TOED WOODPECKER (*Picoides americanus*) IN NORTHERN NEW YORK. — Since the eggs of this species have never been described, and do not exist, to my knowledge, in the cabinet of any of our ornithologists, it is with no ordinary degree of pleasure that I am enabled to make the following extract from my journal.

"June 4, 1878. — Shortly after crossing Moose River this morning, *en route* for the Fulton chain of lakes, Mr. C. L. Bagg and I were so fortunate as to secure a set of the eggs, with both parent birds, of *Picoides americanus* (old *hirsutus*). We had just crossed the boundary line between Lewis and Herkimer Counties, when Mr. Bagg called my attention to a 'fresh hole,' about eight feet from the ground, in a spruce-tree near by. On approaching the tree a yellow crown appeared in the hole, showing us that the nest belonged to one of the Three-toed Woodpeckers, and that the male bird was 'at home.' To prevent his escape I jumped toward the tree and introduced three fingers, which were immediately punctured in a manner so distasteful to their proprietor as to necessitate an immediate withdrawal and exchange for the muzzle of my friend's gun. A handkerchief was next crowded into the hole, but was instantly riddled and driven out by a few blows from his terrible bill. It was then held loosely over the hole, and as the bird emerged I secured and killed him. Through the kindness of a friend my pocket contained one of those happy combinations of knives, saws, and button-hooks, — a sort of tool-chest in miniature, — which one sometimes sees in the shop windows, and is apt to regard with awe rather than admiration, but which constitutes, nevertheless, one of the most useful articles in a naturalist's outfit. With this instrument we were enabled to saw a block from the face of the nest, and to secure, uninjured, the four nearly fresh eggs which it contained. While wrapping up the eggs the female bird returned, and as she alighted on the side of the tree was killed by Mr. Bagg. The orifice of the hole was about eight feet high and an inch and a half in diameter, and the cavity was about ten inches deep."

The eggs are cream-white, and of a texture like those of other Woodpeckers. They are strongly ovate in outline (the largest diameter being near the large end), and measure respectively  $23.8 \times 17.2$  mm.,  $23.6 \times 17.8$  mm.,  $23.8 \times 17.9$  mm., and  $23 \times 17.8$  mm.

So far as I am aware this rare Woodpecker is only found along the eastern border of Lewis County, in the Adirondack region, where it is a resident species; and even here it is much less common than its congener, the Black-backed Woodpecker. — C. HART MERRIAM, *Locust Grove, Lewis Co., N. Y.*

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